

October 21, 2011

Volume 33 Number 21

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Affordable Network Control

Milton Security Group Specializes In Adaptive Network Access Control & Monitoring For Your Network

NETWORK ACCESS CONTROL is vital to a company's network security, but implementing a NAC solution can be a daunting task for small businesses with limited staff and budget dollars. Milton Security Group's NAC and monitoring solutions are made to extend your control over your enterprise network. Its Edge series appliances and Informer series tools are effective, yet inexpensive, making them a perfect fit for SMEs.

Edge Series

Milton's Edge 7200i is an enterprise-class appliance that provides network access and admission control, says James McMurry, CEO of Milton Security Group (www.miltonsecurity.com). "With the Edge device, you can control the who, what, where, when, and how on your network," he says.

The EdgeOFIS scanning engine is part of the Edge 7200i, which is also available in virtual machine or hardware form for security report generation. While firewalls protect networks from external threats, McMurry says, Milton's Edge series was designed to address inadvertent or intentional threats from the inside, namely users.

"The best example is the sales employee that takes his laptop to Starbucks, then brings a potentially compromised system onto your network," McMurry says. "Also if that same salesperson has not had their laptop on the network for many weeks, how can you guarantee that they have all the latest patches, updates, and virus definitions? When the user plugs in, the Edge can scan for those problems and control what part of the network the user can access. And being inline, [an Edge device] can continue to do this throughout the user's session."

Milton Security Group emphasizes the user-friendly value proposition of its network devices. "Our Edge series stands out for a number of reasons," McMurry says. "They are the lowest-cost solution on the market while remaining extremely scalable and providing more functionality than most competitors."

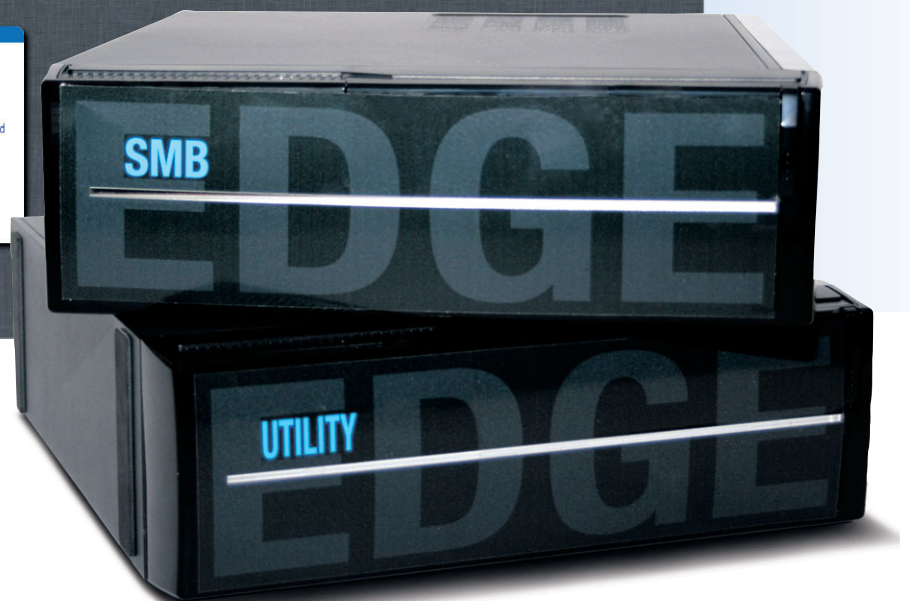
The inline nature of Edge appliances, such as the 7200i and its small business companion, the EdgeSMB, puts you in command. "Most of our competitors offer out-of-band solutions, and that makes it hard to have good security. Our solution is in-band, which allows for full control at all times," McMurry says.

"We are also one of very few whose NAC appliance can perform compliance scans without an agent," he continues. "We are network equipment agnostic because we do not need to touch any other devices to provide the security. Out-of-band solutions make changes to network switches to control flow and provide

MSGInformer is an OS X-based GUI that is designed to get quick information about Edge7200 security appliances, including top talkers, McMurry says. He explains that the company has developed the new EdgeInformer product, slated to replace MSGInformer, to serve as a more

more functionality than our competition but at a much lower cost," McMurry says.

At the same time, according to McMurry, the company's support doesn't reflect its modest pricing. For example, every Milton product comes with a year of tech support with the option for more.



what we do inline, so they must be compatible" with specific network gear.

Informer Series

Milton's Informer series of monitoring tools is headlined by its Virtual Operations Center.

"This series of products is designed to get a handle on the exploding management nightmare that businesses can get into," McMurry says. "Ease of deployment of virtual machines, for example, can take an administrator from managing just a few servers to managing hundreds in just days."

The company's Informer Suite of network management tools starts with VOC and MSGInformer, McMurry says. "VOC is designed to help cut through the data to the more important and critical management issues. It monitors your VM environment's health and takes its vitals, so to speak," he says. "VOC [also] gives you a great VMWare monitoring system at a fraction of the cost of most of our competitors in this space," McMurry says. "So once again, cost is one of the biggest things that set us apart."

advanced, Web-based solution for monitoring edge devices and the users attaching through them.

"We are in the process of developing four other Informer tools to accompany our current offerings to help increase security and to increase the amount of data you have available to make decisions," McMurry says. "The Informer line has a long road map of other products that will work together to become a large data analysis portal."

The Milton Message

Milton Security Group's mission is to field network solutions that address real enterprise needs but can also compete on price. "Milton products give the same or

"When you call for support, you get to a live person who is ready to start troubleshooting," McMurry adds.

Milton's support lines are manned by engineers, McMurry says, so that an engineer is your first point of contact when there's a problem to resolve. And even if Milton determines that its products are not at fault, it will still work with you to get your systems back in business, McMurry says.

"It is important to us that the user has a working, secure network," he says, "and we do what it takes to make it that way." ■

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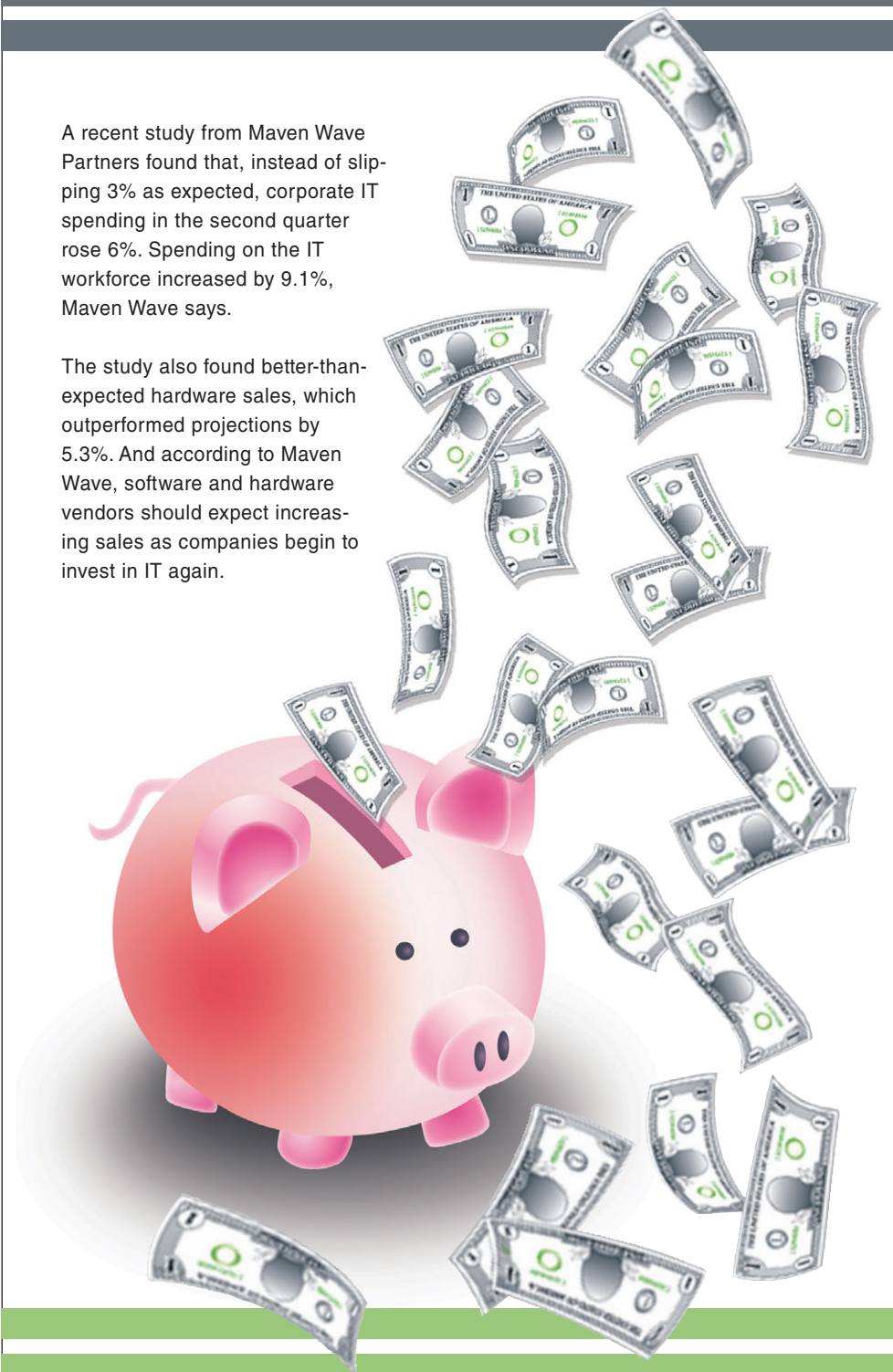
STATS & FACTS

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FROM LEADING RESEARCH FIRMS

IT Spending Is
ON THE RISE . . .

A recent study from Maven Wave Partners found that, instead of slipping 3% as expected, corporate IT spending in the second quarter rose 6%. Spending on the IT workforce increased by 9.1%, Maven Wave says.

The study also found better-than-expected hardware sales, which outperformed projections by 5.3%. And according to Maven Wave, software and hardware vendors should expect increasing sales as companies begin to invest in IT again.



. . . & An INCREASING Part
Is Going Toward Storage

Recent research from IDC indicates that companies are investing an increasing amount of their growing IT budgets in storage as they update their systems to handle big data. In the second quarter, the disk storage systems market grew more than 10% from the same quarter last year, with revenue of about \$7.5 billion. The external disk storage market grew 12.2% from the previous year, with about \$5.6 billion in revenue. IDC also found that sales increased for all major storage product categories.

- **5,353 petabytes:** total amount of storage capacity shipped in the second quarter, a year-over-year increase of 46.7%
- **\$4.8 billion:** revenue from non-mainframe networked storage systems, a 15% increase from a year earlier
- **14.3%:** increase in revenue from all open SANs
- **16.9%:** increase in revenue for network-attached storage systems
- **21%:** increase in revenue for iSCSI SANs



■ Hosting.com Buys NeoSpire

Hosting.com, which provides cloud hosting and recovery services, acquired NeoSpire, a managed hosting company. The companies did not disclose terms of the deal. The acquisition will add Dallas-based NeoSpire’s services to Hosting.com’s portfolio, including managed security, application hosting, database administration, SaaS hosting, exchange hosting, and colocation services. The deal will give NeoSpire’s customers access to Hosting.com’s services, including its Cloud Replication solution that provides offsite data protection and disaster recovery. With the addition of NeoSpire’s Dallas facility, Hosting.com now has about 131,000 square feet of colocation space in six different cities across the country.

■ IT Employment Close To 2008 Levels

A Bureau of Labor Statistics survey found that 4.14 million workers were employed in the U.S. IT sector in the third quarter. That’s about the same number as were employed in the IT sector in the second quarter of 2008, before the recession. The BLS reported 4.06 million IT employees in the second quarter of this year. Although the number of people employed in IT jobs grew this quarter, the unemployment rate rose because of growth in the IT workforce. IT unemployment rates for managerial, professional, and related occupations is at 4.8%, the bureau says. The IT employment rate was 3.6%, up from last quarter’s 3.4%.

■ Cray To Build Supercomputer For DOE

In a contract worth \$97 million, the Department of Energy’s Oak Ridge National Laboratory has commissioned Cray to build a supercomputer potentially capable of delivering up to 20 petaflops of performance. The new system, called Titan, is an upgrade of Cray’s Jaguar system, which Oak Ridge says is the fastest supercomputer in the United States, with peak performance of 2.33 petaflops. The Titan system will use a combination of AMD CPUs and Nvidia graphics chips to deliver peak performance between 10 and 20 petaflops. The world’s current fastest system, the K system in Japan, is capable of about 8.8 petaflops. Titan is scheduled to be completed in 2013.

■ Chrome Soon To Claim No. 2 Browser Spot

The Irish firm StatCounter has published information showing browser user share, and

was the loser, Windows 7 gained by climbing 1.8% to reach 32.4% of the OS market. Vista also is losing ground, operating now on just 9.1% of PCs. If trends continue, Win7 will be the dominant operating system by May 2012, possibly reaching a 48% share by October of next year.

■ Majority Of Firms Send Jobs Offshore

Sending jobs offshore has now become the order of the day for 65% of businesses, according to the Society of Information Management’s annual survey of IT budgets and technology trends. CIOs and senior IT leaders at 275 companies were interviewed for the study, which showed 20% of companies use offshore services to manage their infrastructure and almost a quarter to run existing systems applications. Over half of those who chose to go offshore decided to use India-based companies, and 10% used Chinese companies. Seven percent chose Mexico, Western Europe followed at 6%, and Eastern Europe, the Philippines, and the Caribbean tied at 4%.

■ Feds Defend Move To Cloud Computing

In a hearing of the House Subcommittee on Cybersecurity, Infrastructure Protection, and Security Technologies, federal officials assured members of Congress that the government’s move toward cloud computing will not increase security risks. David McClure, associate administrator for the GSA’s Office of Citizen Services and Innovative Technologies, told the committee that new cloud systems are no more vulnerable than existing systems and that the government is working on standards and technologies to make cloud computing even safer. Key to securing the cloud computing systems, officials said, is the FedRAMP (Federal Risk and Authorization Management Program), which centralizes security for cloud computing.

■ Wi-Fi Users Unaware Of Security Needs

Although wireless users are making efforts to secure their systems, in many ways they are falling short. Wakefield Research, on behalf of the Wi-Fi Alliance, interviewed 1,000 Wi-Fi users nationwide, asking what they are doing to protect their online security. The results show that 86% of those polled have taken the basic precautions to protect their systems. Almost all (97%) felt their networks were safe, but when asked about a list of recommended security precautions they’ve taken, they scored only



Chrome seems ready to assume the No. 2 spot. Microsoft’s Internet Explorer is secure at No. 1, but Chrome is making considerable headway against Firefox, and is expected to pass it by the end of 2011. Latest figures reveal Chrome having a 23.6% share, compared to Firefox’s 26.8%. IE’s share was 41.7%. Chrome has seen a 50% increase since January, Firefox has dropped 13%, and IE’s figure has declined 9%. By December, InStat says, Chrome will have a 26.6% share, surpassing Firefox’s expected 25.3%.

■ Windows XP Usage Continues To Fall

Windows XP continues to lose favor with computer users as its share of desktop operating users has dropped again, this time to 50.5%. Analytics firm Net Applications obtained data from 160 million unique visitors using 40,000 Web sites to gather its information. While XP

66%. Additionally, less than 60% used truly safe passwords, and just 18% used VPNs when using a wireless hotspot.

■ New Executive Chairman At Integra Telecom

Kevin O’Hara has taken over as executive chairman of Integra Telecom. Formerly of Level 3 Communications, O’Hara follows Tom Casey, who departed to be pigment manufacturer Tronox’s CEO. O’Hara co-founded Level 3 and served as its COO, but was forced out in 2008. Casey’s tenure at Integra was short, following five years as CEO of Current Group, a provider of VoIP and broadband. Integra also named Ken Worcester to its channel chief position. In company news, Integra has been expanding its offerings for SMBs and the enterprise market, along with its network and fiber infrastructure.

PHOTO LISTINGS

The *Processor* Photo Listings section includes brief overviews of data center products. All products listed have been released recently, so use this section to get up to date with what's new on the market and to find products you need.

Manufacturers:

Do you have a new product that data center/IT managers would be interested in learning about?

Send your press release or product information to press@processor.com.

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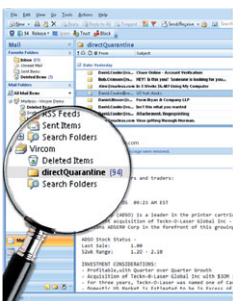
The Ayan IV has been designed to provide cooling in a horizontal direction, creating a new way to position the unit. The individual unit can be positioned between the racks, creating a more even dissipation of extreme heat from the servers.



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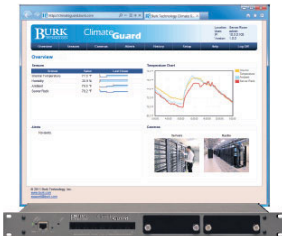


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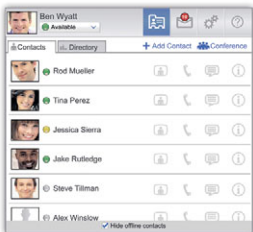
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Solutions To Tough Physical Data Center Management Problems

Get Tips & Tricks From The Pros At The 6SigmaDC Data Center Conference

THE BIGGEST CHALLENGE TODAY in managing the physical data center is the coordination and communication of the various groups across traditional silos of management. The most critical gap lies between IT and facilities operations. This gap has major implications for IT resilience, operational efficiency, and data center longevity. In fact, research has shown that up to 40% of the IT loading capacity can be lost to badly coordinated efforts between IT and facilities. The 6SigmaDC Data Center Conference was created to help IT and facilities bridge the gap successfully.

Get Answers From The Pros

The 6SigmaDC Data Center Conference is for anyone that is suffering from performance, cost, or business continuity problems that stem from a lack of coordination between IT and facilities at the hardware or process levels. Leading-edge solutions that integrate across these traditional silos will be presented.

For example, Intel will present the integration of real-time, server-level thermal monitoring and the Virtual Facility simulation model. This integration provides present and future views of server thermal conditions and cooling requirements (including the server airflow) to enable automation and optimization of cooling capacity based directly on demand. Once implemented, data center managers will be able to operate data centers at higher levels of efficiency and proactively steer their data centers past the configurations that put IT equipment at risk and strand IT loading capacity.

Facebook will present the Open Compute Project, which makes data center and server designs open-source and increases the design integration between servers and the facility to improve cloud computing performance.

The 451 Group will present research data and a perspective on the nascent market for DCIM (data center infrastructure management) software. DCIM software will become an increasingly important

platform to manage data centers operations and coordinate the various teams involved. The 451 Group is projecting this market to grow from 5% to 40% market penetration by 2016. An understanding of the problems being addressed and how the solutions are evolving is a critical competitive advantage.

Bridge The Gap

The 6SigmaDC Data Center Conference targets the gap between IT and facilities unlike any other event. Attendees will benefit from clarity on the business impact of communication barriers on data center performance and how the various solutions attack these issues. We look forward to seeing you there! 

2011 6SigmaDC Conference & User Group

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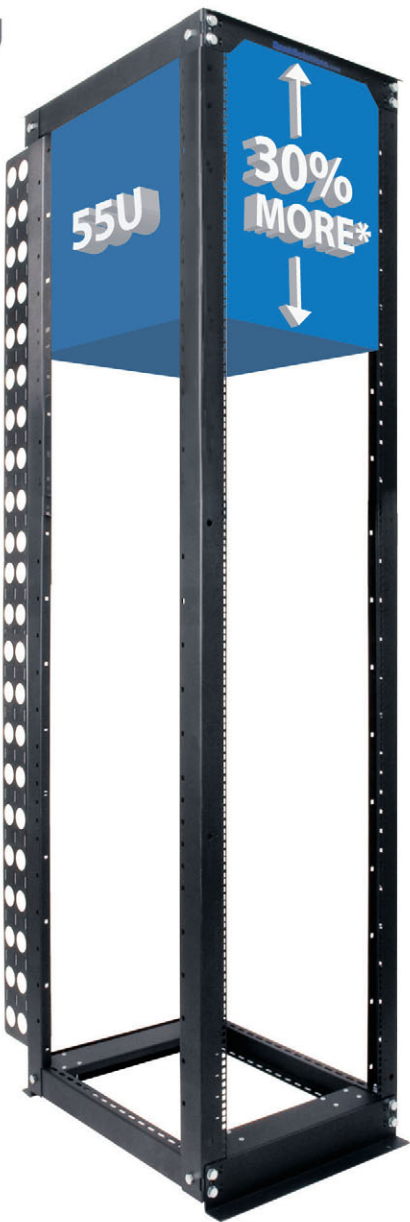
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At RackSolutions, we pride ourselves on being an engineering driven company. With over a decade serving the data center market, we've developed product solutions for every major OEM. Better yet, our top notch staff of mechanical and electrical engineers are available to solve your toughest custom data center installation design challenges. Our customers like the fact that we often provide a first article prototype before competitors have even supplied a quote.



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Pinpoint Energy Hogs

Save Money & Improve Efficiency By Cutting Down On Power-Hungry Energy Drains

KEEPING THE DATA CENTER RUNNING is not an inexpensive task. It takes energy to run both servers and the power and cooling systems that keep them going, and energy costs money—money that is part of an overall budget that must also account for other expenses in the data center. If inefficient servers and other devices are wasting energy, then, that means there’s less money in your budget for staff and upgrades. Here are some tips for how to give those energy hogs the axe so you can use your dollars elsewhere.

✔ **Monitor Your Energy Usage**

A key step is to make your data center’s energy usage visible, says Paul Bieganski, CTO of Packet Power (www.packetpower.com).

“A good monitoring system should make it easy to allocate energy usage by application, budget category, etc.,” Bieganski says. “Letting end users know the cost (both monetary and environmental) to run their systems can make them more open to energy efficiency initiatives.”

Don’t fall into the trap of limiting your analysis to certain types of equipment while ignoring others. “Monitor everything,” says Robert Faulkner, sales engineer with Server Technology (www.servertech.com). “The data center is not just servers. Be sure to capture power data from all pieces of equipment. The big three—servers, storage, and network equipment—are all drawing power.”

Also, Faulkner says, it’s important to monitor continuously. “Spot measurement on a weekly basis just doesn’t cut it,” he says. “Peak usage needs to be caught in action by continually polling for power consumption over time. Are there usage peaks at 4 p.m. or on Wednesday or on the first of the month? How can you know if you aren’t gathering this data?”

✔ **Police Your Infrastructure**

“Next up, ensure energy-efficient practices for power and cooling infrastructure,” says Jim Hall, marketing manager for Staco Energy Products (www.stacoenergy.com).

“Balance out the hot spots,” Bieganski advises. “High power users generate a lot of heat.”

Indeed, inefficient IT gear packs a one-two punch: Inefficiency means that more energy is being lost as waste heat instead of doing useful work, and once that waste heat is generated, your cooling system must work that much harder to regulate the temperature of your server room or data center.

“Use temperature monitoring to identify areas where your cooling systems are having trouble removing heat,” Bieganski says. “Then add new power load to areas in the data center that have both underused power and sufficient cooling available to meet the need.”

“Your power chain starts with utility, switchgear, UPS, and related auxiliary equipment, backed up by batteries and generators, [which are] all consumers of energy. Consider all of these components, and size each to ensure all are optimized for efficient operation of your

power infrastructure,” Hall advises. “Calculate your capacity to match the resulting expected loading from your energy efficiency improvement efforts. Chiller capacity is a key consideration as you optimize your cooling practices.”

Another thing to consider is the delta temperature of the cooling system. The delta temp is the difference in temperature between the coolant on the cold and hot sides of a cooling system such as a CRAC (computer room air conditioning) system.

“Low CRAC delta temp is not always an indication of using too much energy, but it is an indication that CRACs are not effectively cooling,” says Dan Moscola, product marketing manager at Vigilent (www.vigilent.com). “Low delta T decreases cooling efficiency and is a result of mixing caused by excessive airflow.”

According to Moscola, “Units that are not effectively cooling actually act as heaters to the data center. Efficiencies can be increased by creating a more direct way for the hot air to get back to the CRAC. Most data centers are designed with too many CRACs so shutting off the ones that are not effective will improve energy efficiency and lower the average data center inlet temperatures.”

✔ **Virtualize & Consolidate**

If you find yourself faced with obsolete or underutilized hardware, “decommission where possible, and virtualize others,” Hall advises. “During this phase, always consider [a device’s] age.”

“Don’t ignore the little guys,” Bieganski says. “The best way to save power is often to run fewer servers at higher utilization.”

Running fewer systems with heavier loads translates to virtualization. But what should you virtualize? “Use a power monitoring system to check for circuits that are lightly used and have flat usage profiles across time,” Bieganski says. “Then, virtualize the associated devices where possible.”

“Not all applications are targets for virtualization,” Hall says, but he advises to take advantage of those that are.

✔ **Slaughter The Energy Hogs**

Hall recommends removing legacy servers. The idea here is to look for more efficient equipment, which, by definition, can do the same work while using less electricity. “Legacy energy-hog IT equipment should be replaced, where

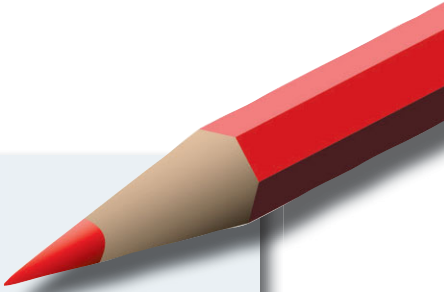
possible, with Energy Star-rated gear,” Hall says.

Bieganski recommends that you replace high-power devices that have a low power factor as measured. “A power factor below 95% on a circuit with reasonable load may indicate a device that is both power-hungry and inefficient,” Bieganski says. “Check that rack for older technology that should be upgraded.”

In your quest to root out inefficient devices, you may even find old gear that’s

active, but no longer necessary. “Changes in IT equipment happen so frequently now that it has become difficult to track what servers are actually processing useful information,” Hall says.

“It is common for forgotten servers to be left on racks running and consuming energy,” Moscola says. “The benefit of identifying and removing these servers is energy savings two times the IT load you are removing, because you also gain savings from a reduced cooling load.” **P**



Easiest Tip To Implement:

✔ *Use Your Downtime*

“Seize the opportunity to optimize efficiency during your data center consolidations. Although this is a complex and daunting task, including several key requirements can result in huge improvements in the use of energy,” says Jim Hall, marketing manager for Staco Energy Products (www.stacoenergy.com).

“When taking your inventory of servers and other IT equipment, make certain you measure loading for each, as well as age and operating characteristics,” Hall says. “Align your plans with efficiency and loading.”

Most Budget-Savvy Tip:

✔ *Remember The Bottom Line*

As you seek out ways to curb energy costs, be aware that some methods can save your business money in other ways, too.

“Most of our customers deploy power monitoring at the circuit level, which is far less expensive than monitoring at the device level,” says Paul Bieganski, CTO of Packet Power (www.packetpower.com).

BONUS TIPS:

✔ *Get buy-in.*

For your energy savings playbook to work, it’s critical to get all relevant staff on the same page. “Monitoring is great, but if those personnel that can affect power usage are not in agreement with its level of importance, nothing can change,” says Robert Faulkner, sales engineer with Server Technology (www.servertech.com).

✔ *Tweak power settings and schedules.*

“After identifying what devices are drawing the most power and when they are drawing that power, it is time to act,” says Faulkner. “Perhaps certain devices can be upgraded with more efficient supplies. Perhaps certain jobs can be moved from 4 p.m. to 1 a.m. or from Wednesday to Saturday.”

BUYING GUIDE

BUYING TIPS:
PDUs

WHEN PDUS BEGAN appearing in data centers and networking rooms a couple decades ago, they were little more than pricey power strips. Since then, PDUs have evolved into integral components of a modern power distribution infrastructure, delivering correct voltage and current to multiple outlets. Intelligent PDUs are even capable of measuring current load at the PDU level, sounding user-defined alarms, reporting levels and power cycling remotely, and supporting external temperature and humidity sensors. With so much riding on continuous uptime, here are some things to keep in mind when shopping around for the perfect PDU to keep things humming along.

Knowledge is power. According to Brett Femrite, director of business development at Rackmount Solutions (www.rackmountsolutions.net), you have to do your homework prior to making a PDU purchase. "It is critical that the PDU you select match up with your power consumption needs and server/network equipment," he says. Femrite recommends making note of the type and quantity of outlets needed and whether you can daisy-chain for added capacity. Although the ability to expand capacity might not be critical now, having the option could save money down the road. Femrite also highlights form factor (vertical/horizontal, rack/wall-mountable, or OU), the amperage the PDU needs to support, and the type of PDU that best serves the requirements

and needs of the data center as other key factors to consider.

"There are generally three types of PDUs: basic, metered, and switched," Femrite says. "Each type comes with its own set of features." A basic PDU, according to Femrite, lacks monitoring and remote administration capabilities but focuses on simple and effective power distribution. The next best option is a metered PDU, which has everything a basic PDU has, but adds a meter that lets users visually track amperage and GUI management software that lets users monitor the aggregate current being drawn on each PDU in real time. Switched PDUs support everything on a metered PDU and add local and remote control capabilities on a per-outlet level. Redundancy is another of Femrite's key points. "A dual-circuit PDU provides an added layer of fault tolerance by offering two power inputs," he says.

PDU pitfalls. The biggest mistake you can make in purchasing a PDU is getting one that isn't as capable as you need it to be. According to Femrite, "If you don't precisely match up the PDU with your power consumption needs, taking into account anticipated growth/increases, you can wind up having a breaker tripped, which of course can cause a power outage that can be catastrophic."

Some factors that are easy to overlook include finding the right location (which is

BUYERS' CHECKLIST

- ✓ **Know your numbers.** Determine how much power you're going to draw and that you have the right voltage and amperage numbers.
- ✓ **Look for environmental monitoring capabilities.** If stability and cooling are a concern, make sure to purchase a PDU with environmental monitoring features and remote access and control capabilities.
- ✓ **Pick a form factor.** Determine whether you want a rack-mountable, wall-mountable, or OU form factor PDU.

KEY TERMS

PDU: A power distribution unit is any device that provides electrical power to servers, networking components, storage devices, and other data center equipment.

Intelligent PDU: An intelligent PDU is any PDU that offers Web-based management, meter power at both the PDU and individual outlet level, and real-time power monitoring.

Metered PDU: These PDUs can track current draw at the PDU level and display the data locally and often remotely, as well.

Switched PDU: Users of switched PDUs can remotely switch connected devices on and off; some even afford outlet management technology.

typically dependent on the form factor), how a switched PDU will be connected to the network, and how far the PDU will be from its power source. "It's much easier to tie up some extra power cord than to move a rack full of equipment," Femrite says.

Plan ahead. Purchasing a PDU is a no-brainer, but getting the right one to meet your needs will require some careful consideration and a little planning ahead. Manage that, and everything else will fall into place. **P**



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PRODUCT SPOTLIGHT

PDU

Product

Black Box Metered Vertical PDU

Description


Black Box's Metered Vertical PDU is a space-saving strip with 24 NEMA 5-20R outlets that measures and displays AC current. It mounts to the vertical rails of a cabinet or rack.

- Three-digit LED display shows current draw
- Alarm notifies you when current threshold has been reached
- Includes a 15-foot (4.5m) NEMA L5-20P power cord

Best For: Adding outlets in tight spaces while keeping track of current draw.

Price: \$185.95

Contact: (877) 877-2269 | www.blackbox.com



Product

Black Box Outlet-Managed PDUs

Description


The Black Box Outlet-Managed PDU provides complete power control for network devices, including capabilities such as remote and timed individual outlet switching, auto on/off/reboot, load shed switching, and outlet sequencing. It enables power switching for individual network devices or for groups of equipment in an effort to allow data center administrators to save energy by automatically powering down equipment at night or on weekends when it's not being used.

- Monitors equipment power, changes in current levels, circuit breaker status, temperature, and unauthorized access attempts
- Sends alerts by email, text, SNMP, SYSLOG, or audible alarms
- Generates reports with detailed records of current and power consumption
- Can be set to ping equipment at set intervals and reboot if there's no response

Best For: Reducing energy and personnel requirements in data centers.

Price: Starts at \$676.95

Contact: (877) 877-2269 | www.blackbox.com



Product

Cyber Switching ePower Product Family


Description

Cyber Switching's ePower family is targeted at data center managers searching for greener solutions that integrate rich features while providing high reliability and great value. Patented Individual Outlet Metering provides billing-grade metering for each outlet at an accuracy of 2% or better. Utilizing the unit's full-color LCD touchscreen or a standard Web browser, IT personnel can be kept up-to-date on critical information, including real-time power information, load details, input line utilization, and system status.

- Patented Cyber Breaker technology protects equipment by limiting overcurrent conditions to a single outlet
- Color LCD touchscreen for local management and setup
- Two high-speed USB ports support up to 127 peripherals
- 60+ high-density PDU configurations
- Network connection for remote monitoring and management of your power usage

Best For: Companies looking to implement a comprehensive data center management plan.

Contact: (888) 311-6277 | www.cyberswitching.com



Product

PDUs Direct C-24VDX413A9

Description


PDUs Direct's C-24VDX413A9 is a metered three-phase rack-mountable PDU that lets users load balance using LED load meters. This zero U unit features 12 IEC C13 and 12 IEC C19 outlets, a three-phase IEC 60309 60A in-feed plug, and three integrated local amp meters. This metered rack PDU provides nearly twice the power density of a standard 208V circuit and robust power distribution for your equipment without taking valuable rack space.

- Steel case enclosure
- Mixed C13 and C19 industrial-grade outlets
- High-quality powder coat
- Input current monitor with true RMS reading
- Hardwired IEC 60309 power cord
- 60A

Best For: IT managers who need to save space for equipment and ventilation.

Price: \$1,045

Contact: (888) 751-7387 | www.pdusdirect.com



Product

Rackmount Solutions InfraPower MT-Monitored Rack PDU Series

Description


The InfraPower MT-Monitored Rack PDU series from Rackmount Solutions is designed for mission-critical data center applications. The units offer local and remote RMS current monitoring, a digital RMS amp meter that is easy to read, and a Web-based GUI for real-time management and monitoring. Available in both vertical and horizontal form factors, the PDUs have between two and 24 receptacles and feature a two-year replacement warranty.

- Sends email alerts
- Users can set their own alert parameters
- Supports a range of data center output receptacles
- Can daisy-chain up to 16 intelligent PDUs

Best For: Mission-critical data center hardware monitoring.

Price: Starts at \$440

Contact: (866) 207-6631 | www.rackmountsolutions.net



Product

Rackmount Solutions InfraPower MTS-Switched Rack PDU Series


Description

The InfraPower MTS-Switched Rack PDU from Rackmount Solutions is an industrial-grade offering that provides local and remote RMS current monitoring and control. It features a digital RMS ammeter for amperage monitoring, and the Web-based GUI lets users monitor and control the individual receptacle outlets either locally or remotely. Backed by a two-year replacement warranty, the MTS-Switched Rack PDU Series meets or exceeds all international standards for rack-mounted power distribution units and is UL-, UCC-, and CE-certified.

- Accurate, easy-to-read RMS ammeter for local aggregate monitoring
- Web-based GUI management and control
- Email alerts triggered by user-defined parameters
- Supports a daisy-chain connection of up to 16 intelligent PDUs
- 0U (vertical) and 1U or 2U rackmount styles available

Best For: Mission-critical data center hardware monitoring.

Contact: (866) 207-6631 | www.rackmountsolutions.net



PRODUCT SPOTLIGHT

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

iStarUSA Group Claytek WA-PD016 PDU



The WA-PD016 from Claytek (powered by iStarUSA Group) is a 16-outlet power distribution unit that provides protection from power surges and lightning. Set in a vertical orientation, the UPS is modular for convenience.

- 16 outlets
- Modular and replaceable surge unit
- Power and surge LED indicators
- Circuit breaker with prompt overload protection response
- RoHS-compliant

Best For: Small businesses in need of an easily managed PDU solution.

Price: \$110

Contact: (888) 989-1189 | www.istarusa.com

Packet Power Smart Power Cables



Packet Power Smart Power Cables offer the simplest and most affordable way to monitor the power coming into your racks. Inserted between your power strip and its power source, the cable transmits complete power usage data in real time over a wireless network where a small Ethernet Gateway gathers data from hundreds of cables and transmits it to your local monitoring application or to Packet Power's cloud-based Energy Analysis Service.

- Single- and three-phase power: 10 to 100 amps, 100 to 240 volts
- All connector types, including NEMA, IEC, Hubbell, and RussellStoll
- Supports any mix of circuit and device-level monitoring
- Completely vendor-neutral
- Grows easily from a few circuits to hundreds
- Supports single- and multiple-facility installations
- Costs 30 to 50% less than smart PDUs

Best For: Data centers that value ease of installation and an affordable price.

Price: Starts at \$125

Contact: (877) 560-8770 | www.packetpower.com

PDUs Direct C-12H2-L30M



The C-12H2-L30M from PDUs Direct is an industrial-grade metered rack-mountable 208V PDU with 12 IEC C13 outlets, a twist-lock NEMA L6-30P in-feed plug, and a local amp meter. This unit provides high power density and dependable power distribution for your equipment racks in a 1U form factor. The Metered PDUs include local LED input current monitoring, which lets users precisely measure the amps drawn and observe the impact of new equipment as well as cumulative current draw.

- Steel case enclosure
- Industrial-grade outlets
- High-quality powder coat
- Input current monitoring with true RMS reading
- Hardwired L6-30P power cord
- 30A

Best For: IT managers who need to save space for equipment and ventilation.

Price: \$270

Contact: (888) 751-7387 | www.pdusdirect.com

Raritan Intelligent Asset Tracking



Raritan's AMT (Asset Management Tag) and AMS (Asset Management Sensor) solutions help give data center operators an accurate, automated, real-time inventory of all IT assets and their locations, down to the 1U level. AMT and AMS can be combined with Raritan's dcTrack data center infrastructure management software, which is designed to track assets, determine capacity in a number of areas, and manage changes.

- Minimize the hours needed to track IT assets, saving time and money
- Quickly conduct physical inventories with accuracy and pass audits
- Efficiently consolidate or virtualize data centers
- Improve the IT department's alignment with business and management objectives
- Optimize IT strategic and tactical decision making by tracking changes in real time

Best For: Intelligent, real-time asset management.

Price: AMT starts at \$699; AMS starts at \$700

Server Technology Sentry Power Manager 5.0



Sentry Power Manager 5.0 from Server Technology is a comprehensive and affordable global rack-level solution designed to measure, monitor, and trend power and environmental information in your data center. The latest version delivers a single-pane-of-glass view and has the ability to manage your entire PDU network while providing measurement, monitoring, and trending data at the rack level.

- Manage thousands of CDUs from a single console
- Track active alarms and alarm history
- Create and save reports and trends
- Middleware or standalone flexibility

Best For: Intelligent data centers looking for a unified view into their power distribution systems.

Contact: (800) 835-1515 | www.servertech.com

Server Technology Switched POPS CDUs



Server Technology's Switched POPS (Per Outlet Power Sensing) CDUs provide industry-leading device-level accuracy and outlet switching (on/off/reboot). Using Server Technology's grouping technology, power information is available per device, groups of devices (application), individual CDUs, or cabinet.

- Per-outlet data includes current load, voltage, power, apparent power, crest factor, and power factor
- Available in 0U, 1U, and 2U form factors
- Mid- and high-density products are available from 208V to 415V
- Best when used in conjunction with SPM v5.0

Best For: Data Centers that want granular, accurate power information.

Contact: (800) 835-1515 | www.servertech.com

Get Started With Environmental Monitoring In The Data Center

Perfect Conditions From Start To Finish

ENVIRONMENTAL PROBLEMS are the main causes of data center downtime. When environmental conditions are not perfect—or worse, out of control—equipment, productivity, and the data center budget are all affected. Indeed, there is a science to implementing the right environmental monitoring solution for the data center, but every data center is not the same. Knowing where to begin, what tools to use, and understanding the benefits and pitfalls, can help you manage risk, make the data center more comfortable, and save you huge headaches down the road.

Understand The Basics

For Dave Ruede, vice president of sales and marketing with Temperature@lert (www.temperaturealert.com), getting started with environmental monitoring is much like deciding which temperature in your home is most comfortable. “For data centers, server and telecommunication rooms, this can be as simple as taking a look at the thermostat in the room, which will tell you the temperature at that location. From there, collecting data for a baseline is the next step. But temperatures in data centers and even server racks and aisles can vary significantly.”

Ruede says taking a baseline will require measuring temperatures in several places, near the floor, ceiling, at the outlet of the AC registers, and for a complete data set, at the bottom and top of server racks both inside and outside.

According to Bob Douglass, vice president of sales and marketing at Sensaphone (www.sensaphone.com), the first step is always to determine your needs. “That may sound simple and obvious,” Douglass notes, “but there are usually more things to consider up front than most people realize.” Although people typically think of temperature first, Douglass says, there are other issues that need to be considered, such as humidity, which can produce condensation or corrosion and shorten the lifetime of electronics. Other issues can arise from city power or UPS failure, and airflow issues such as smoke and fire. “In the event of an actual fire, who is contacted first? It is not always the IT staff responsible for implementing the disaster recovery plan,” Douglass says.

Understanding The Environment

Michael Sigourney, president and CEO of AVTECH Software (www.avtech.com), says he recommends that IT and data center managers “know thy facility.” “The first thing an IT or facilities manager needs to consider and create is an understanding of the basic layout and elements, both structure and equipment, within their facility,” he says. “Knowing where threats are likely to occur or have occurred in the past is key to planning success. Environmental monitoring is not a ‘one size fits all’ scenario, as each facility is unique.”

Sigourney says as equipment is relocated or replaced over time, the environmental structure of a facility changes and will likely require changes in sensor location, a need for additional sensors, changes in cooling, or other considerations in order to maintain effective monitoring.

The most important information companies can consider before getting started, in the opinion of Temperature@lert’s Ruede, is the history of the data center, server or telecommunication room’s operation related to environmental monitoring. Ruede suggests questioning issues such as the reliability of the location’s power company; potential power interruptions due to thunderstorms, the status of the facility’s electrical systems and equipment; and whether or not cooling systems can maintain during peak demand periods.

Understanding The Tools

After evaluating your needs and analyzing your vulnerabilities, Sensaphone’s Douglass says you should choose a vendor and basic platform to work from. “Most systems will involve some sort of base hardware device that sensors connect to, and that also handles the communications,” he says. “The next step is to start planning sensor types and locations, start buying, and start installing.” One further optional step, Douglass notes, is to consider integration into your existing network management software using SNMP. “This investment is only time, but is well worth while.” One thing to be careful of, Douglass says, is equipment dependencies. For example, monitoring systems that operate on a server or PC would be useless if the server went down. And wireless sensors should use their own Wi-Fi network to ensure operation during power failures. He says built-in battery backup is never a bad thing with monitoring products.


In AVTECH’s Sigourney’s opinion, after a facility has been analyzed, it is important to look for a solution that will meet both current monitoring requirements and allow room for future expansion as needs change. There are several environmental monitoring options available for SMEs, he says. “Whether a manager is looking to monitor temperature only, desires a wireless solution capable of monitoring up to 100 sensors, or something in between, an environmental monitoring solution typically includes the following key components: a monitor, sensors, software, and support services.”

Sigourney points out that some vendors don’t provide software, although their products can still be monitored using third party SNMP-based software. In his opinion, the best solutions include software. “This prevents wasted time trying to get hardware and software from two vendors working together.”

Costs & Benefits

According to Douglass, environmental monitoring costs can range from a

few hundred dollars for a simple monitor to \$3000 or more for an expandable enterprise system. Ruede says costs largely depend on the number and type of sensors deployed and how they are monitored.

At the end of the day, Sigourney says the benefits of installing an environmental monitoring solution include a faster response to potential disasters, reduced downtime, lower ongoing management costs, reduced overtime and perhaps most important, peace of mind. He says the pitfalls of not installing an environmental monitoring solution can be expensive hardware replacement, unexpected downtime, working overtime unexpectedly, or looking like your organization is out of business. 

Key Points

- Getting started with environmental monitoring is like deciding which temperature in your home is most comfortable—start by understanding the current conditions.
- Understand a facility’s basic layout and elements, structure and equipment, and past threats. Environmental monitoring is not a ‘one size fits all’ scenario.
- Look for an environmental monitoring solution that will meet both current monitoring requirements and allow room for future expansion as needs change.

Top Tips

The following tips are provided by Dave Ruede, vice president of sales and marketing with Temperature@lert (www.temperaturealert.com).

- ✓ Study industry information and standards regarding environmental factors. For example, ASHRAE recently released a whitepaper updating its recommendations for electronic equipment temperature and humidity operating conditions.
- ✓ Measuring temperature can be time consuming when using traditional equipment. Automatic monitoring equipment can measure and collect data from one or several locations and will be able to be incorporated in the final implementation, making it very cost effective.

The following tips are provided by Bob Douglass, vice president of sales and marketing at Sensaphone (www.sensaphone.com).

- ✓ For larger environments, consider a system that can be programmed for multiple levels of alarm notification and even programmable lists so that certain types of problems are only sent to the appropriate person.
- ✓ Sending blast e-mails when an alarm occurs can be a disaster if the network is down temporarily. Higher-end systems can be programmed to continue to attempt the alarm notifications until it receives a confirmed response from a user.

BUYING GUIDE



BUYING TIPS:

Cable Management Solutions

TRADITIONAL DATA CENTER DESIGNS are undergoing a radical physical transformation as more companies turn to space-saving, cost-reducing, and green-influenced plans that accommodate today’s equipment but leave wiggle room for tomorrow. A constant in designing any space, however, is choosing the appropriate cable management system for a given situation. The following can help those in charge of the planning select the right cable management system for the present and future.

Cover the basics. The list of considerations for buying cable management products is long. Still, it’s important not to overlook the basics. For example, “One of the easiest methods of managing cables is to use cables that are an appropriate length in the first place,” says Laura Viars, senior account manager at Rackmount Solutions (www.rackmountsolutions.net).

Additionally, factor in overall cost, ease of use and installation, bend radius,

Buyers’ Checklist

- ☒ **OU to the rescue.** Although horizontal cable management products only take up one or two rack spaces, you still may lack free space to work with. In such cases, Rackmount Solutions’ Viars says to consider solutions that can mount on the same holes as your equipment, essentially creating a 0U solution.
- ☒ **Should you DIY?** No matter the management system you choose, you must decide who will install it. Methode’s Carter says that, just as in any product category, DIY can be less expensive than paying for professional installation but can end up costing more due to installation issues and ultimate performance of the installed system.
- ☒ **Measure.** According to Black Box’s Dickson, a basic requirement for buying cable management products that sometimes gets overlooked is that the product must be compatible with existing infrastructure. “In other words, measure before ordering,” she says.

adaptability to current infrastructure, equipment and workmanship warranties, the impact on heating and cooling, material, durability, and diameter. “Different cables have markedly different diameters, ranging from slim fiber-optic cable to very bulky CAT 6A UTP cable,” says Gina Dickson, product manager at Black Box Network Services (www.blackbox.com). “A cable management product that’s adequate for fiber cables may not support the same number of UTP cables.”

Size up the vendor. Cassie Fyten, sales manager at PDU Cables (www.pducables.com), recommends investigating the reputation and service of the vendor, including whether it provides an easy-to-use method for ordering and helps to eliminate confusion, wrong wire size, cable length, and correct outlets required for server connections. Also, determine how quickly the vendor can deliver its product and whether it has knowledge of power cables and their importance to your business, Fyten says.


Check for accessibility and reusability. Viars considers accessibility and reusability two of the best features a cable management product can possess. This can include products with removable covers or that use Velcro tie wraps instead of plastic ones. Michael Carter, general manager of CTI, a Methode Electronics brand (www.methode.com), says it’s important to ask if the product can easily be modified if your infrastructure needs to change.

Don’t be afraid to think big. “Today’s data centers are very

Key Terms

Bend radius. Kinks or crimps in cabling can have a big effect on cable and network performance. Bend radius indicates the radius of curvature a cable can bend without being damaged. Minimum and maximum radius numbers are typically provided to help maintain proper cabling conditions.

UL Listing. Short for Underwriters Laboratory, the UL is an independent safety certification organization that’s tested products and written associated standards for many decades. The standards ensure products won’t cause electrical hazards in mission-critical facilities.

high-density compared to data centers of the past and will likely be called upon to accommodate even higher equipment density in the future,” Dickson says. Thus, buyers should “plan for future growth by incorporating high-capacity cable management such as ladder racks and basket trays,” she says. Viars agrees that expansion is a key consideration. “Whether you are managing a data center or just organizing a single workstation, it can be aggravating having to cut cable ties and re-run wires to accommodate a new addition,” she says, so if expansion is a possibility, plan to accommodate that growth. If managing cable in a rack or cabinet, Viars suggests using the space wisely by making sure cables are bundled neatly, using both horizontal and vertical cable managers when necessary. 

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PRODUCT SPOTLIGHT

Overhead & Underfloor Cable

Product

Black Box Cable Support Hangers

Description


Cable Support Hangers from Black Box hold the same amount of cable as J-hooks and provide sturdy support for all communication cable types (CAT 5/5e/6 and fiber) without sagging, bending, or damaging cable. The stackable loops can be mounted and rotated in any direction on a beam. Flexible, non-metallic, and easy to use, the loops are more cost-efficient than traditional management methods. The hangers can hold bundles weighing up to 75 pounds.

- Plenum-rated and UL/CSA-listed
- Holds up to 100 CAT 5 cables in a 5-inch hanger
- Supports bundles weighing up to 75 pounds

Best For: Hanging communication cable bundles in environmental air handling spaces.

Price: Starts at \$5.39 for 10-pack of 2-inch hangers

Contact: (888) 433-5049 | www.blackbox.com



Product

Black Box Fiber Optic Storage Rings

Description

Black Box's Fiber Optic Storage Rings safely store excess fiber optic cable with proper bend radius maintenance and kinking prevention. The rings hold 30 to 50 feet of excess cable and are designed for use in entrance facilities, intermediate and main distribution frames, and wiring closets.

- Mount to walls with wood screws
- Lifetime guarantee
- Available in 12- and 24-inch diameters

Best For: Storing excess fiber cable in entrance facilities and intermediate and main distribution frames.

Price: Starts at \$29.95 for 12-inch diameter

Contact: (888) 433-5049 | www.blackbox.com



Product

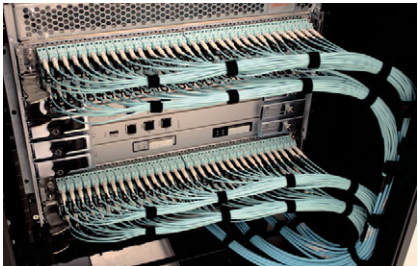
CTI Quantum Cabling Solution™

Description

CTI's Quantum Cabling Solution is a user-friendly, highly efficient cable management solution that lets users cable a fully loaded enterprise-class director in half the time of traditional cabling methods. The Quantum is highly manageable and improves troubleshooting and move/add/change activities as compared to traditional cabling methods when deployed with TIA-942-compliant solutions. The Quantum Cabling Solution can handle the highest port count hardware on the market while utilizing the least amount of valuable rack space. It's currently available for Brocade and Cisco 9513 enterprise-class directors; additional configurations are available upon request.

- Fast, simple installation
- Compliant with TIA-942 Telecommunications Infrastructure Standard for data centers
- Compatible with high-density cabling environments

Best For: Cable management for high-density switches.



Product

iStar ClayTek WA-CM1UB 1U Cable Management Rack Kit

Description


iStar's ClayTek division provides an economical and effective solution for cable clusters. The WA-CM1UB takes up only one unit of space in standard 19-inch racks and enclosures and helps to keep cables organized. Cables can be easily threaded through the panels, and excess wiring can be stored inside the management casing. ClayTek also offers a 2U model, the WA-CM2UB.

- Easy to install and manage
- Economic solution to cable clutter
- Sturdy design protects cables from damage

Best For: Data centers and other organizations requiring affordable, effective cable management.

Price: \$50.95

Contact: (888) 989-1189 | www.istarusa.com



Product

PDU Cables Air-Guard Cable Seal

Description

The Air-Guard cable seal from PDU Cables seals access holes used to route underfloor power distribution cables and communications cables through a data center's floor. The seals provide two-piece design options to manage cabling by allowing users to remove tiles without having to disconnect cables. Additionally, the seal immediately saves energy by significantly minimizing cool air loss while improving static pressure to keep data center equipment from overheating.

- Flexible, simple cable routing via removal of floor tiles without disconnecting equipment
- Reduces air loss in plenum-cooled floors and improves underfloor static pressure
- Extends life of cooling equipment

Best For: Sealing any size of cable opening in a raised data center floor environment.

Contact: (866) 631-4238 | www.pducables.com



Product

PDU Cables UL Listed Power Distribution Cable Assemblies

Description

Manufacturer of UL Listed, underfloor power distribution cable assemblies, PDU Cables is fast, reliable, and knowledgeable while remaining cost-effective in providing the industry's highest-quality power cables. Use prefabricated, color-coded, and labeled cables to excel in data center cleanliness and organization. UL Listed and Hi-Pot tested, every cable is guaranteed not to fail. PDU Cables provides customers with 24-hour turnaround and standard transit times of one to three days to most U.S. locations (cable expedition available). Currently more than 5,000 data centers use PDU Cables' products to save time and labor and to reduce overall project costs.

- UL Listed and tested power distribution cables
- Molded cord assemblies
- Drop-down SO cord

Best For: Raised floor data center applications.

Contact: (866) 631-4238 | www.pducables.com



PRODUCT SPOTLIGHT

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Management

Data Center Depot Rackmount & Vertical Lacing Solutions



Data Center Depot offers a variety of cable lacing solutions to meet enterprises' cable management needs. Its rackmount lacing bars help neatly and securely route cables, with options for straight and offset versions, two sizes of reusable cable tie organizers, and Velcro cable ties. The company's vertical lacing panels feature a T-Hook head design that ensures fast and simple installation of pre-bundled cables.

- Straight and offset lacing bar cables and rods available
- 1U and 2U cable tie organizers
- 8- and 11-inch Velcro cable tie options
- Slotted steel lacing panels and tapped aluminum lacing strips also available

Best For: Enterprises that want to route their cables neatly and securely without a lot of hassle.

Device Technologies Spring-Fast SL Series Encapsulated Metal Grommet Edging

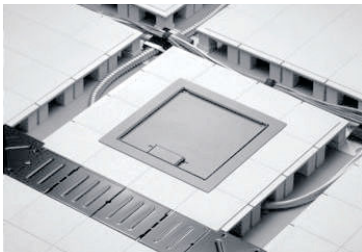


The high-performance SL Series grommet edging from Device Technologies is the company's next-generation wire protection solution. The SL Series meets specifications for Telcordia; BICSI; UL94V-0; and a multitude of performance attributes across various industries, including aerospace, HVAC, medical, power, and transportation. As with all Spring-Fast grommet edging series products, the SL requires only finger pressure to snap on, locking into place to conform to edge requirements. It offers a smooth protective cable, wire, and fiber interface on edges of cabinets, enclosures, and rack sheet metal and/or sharp edges of composite, plastic, or perforated materials.

- Available in a range of sizes with application thickness of 0.02 to 0.13 inches
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- Reels or cut to length
- Indoor/outdoor

Best For: Data centers; telecommunications, equipment rooms, and lab spaces; access floors and underfloor cable management; and racks and chassis.

Information Support Concepts ConnectFloor Modular Computer Floor



The ConnectFloor Modular Computer Floor from Information Support Concepts is a cable management solution designed to provide flexible functionality that is affordable and simple to implement. Similar to Lego building blocks, the company says, you can use the modular pieces to assemble the ideal cable management setup to suit your exact cable-routing needs.

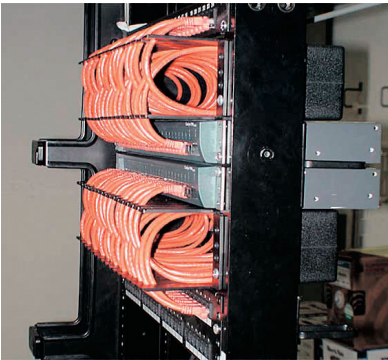
- Less than 3 inches high for a low profile that fits almost any room
- Easy to install, with no special tools required
- Options available for carpet squares and floor power boxes
- Easily reconfigurable and reusable

Best For: IT labs or areas where instant floor cable management is required.

Price: Varies based on square footage; for example, 1 to 3,000 square feet cost \$10.10 per square foot

Contact: (800) 458-6255 | www.iscdfw.com

Rackmount Solutions Neat Patch Cable Organizer



Tired of messy networks? Place the Rackmount Solutions Neat Patch kit between a switch and a patch panel, and you'll never have another cable mess. We guarantee it!

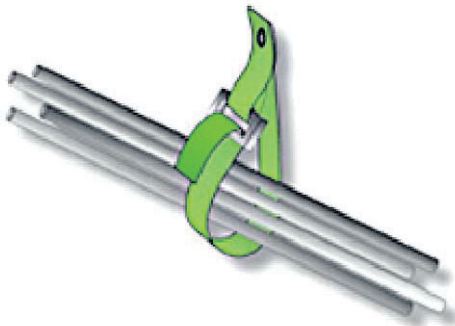
- Promotes bend radius compliance in patch cable management
- Patch cables are easier to trace from panel to electronics
- Priced less than the leading brands of horizontal management
- Uses a patented plastic molded design that is non-conductive. Wire with confidence there will be no electrical issues such as surges and grounding since the plastic fingers are not riveted to metal or metal D-rings.

Best For: Enterprises building a new network or wanting to clean up an existing installation.

Price: Starts at \$59.34

Contact: (866) 207-6631 | www.rackmountsolutions.net

Rackmount Solutions Rack-ups



The Rack-ups wire management straps from Rackmount Solutions are designed to help manage and safely secure electrical, CATV, and fiber-optic cables. Made from Velcro® hook-and-loop tape, Rack-ups will not cut or pinch cords like plastic ties. The hook-and-loop tape makes it easy to adjust, remove, and/or add cords. These straps have a 0.25-inch brass grommet, so they can be nailed or screwed to equipment racks, brackets, shelving, walls, and ceilings, keeping cords safely out of the way.

- Available in three models: plain, grommet, and buckle
- 0.75- x 9-inch hook-and-loop tape
- Comes in black, with other colors available on request

Best For: Data centers in need of an easy way to better organize and manage cabling.

Price: \$7.50 (plain, pack of 10); \$9.95 (grommet, pack of 10); \$12.97 (buckle, pack of 10)

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Is ESD Flooring In Your Future?

A Range Of Options Exists To Reduce Damage Caused By Static Electricity

WE’VE ALL EXPERIENCED IT—you walk down the hall, grab a doorknob, and zap! You get a static shock. In most cases, it’s just irritating, but in a data center, with expensive equipment and your company’s electronic lifeblood in your midst, the last thing you want to do is transfer that static electricity to something it might actually damage. Fortunately, ESD (electrostatic discharge) flooring was created to minimize the havoc that could ensue from a simple static charge.

Do You Need It?

According to Steven Przyborski, general manager at Bettinger West Interiors SE (www.bettingerwest.com), the ESD flooring debate has been going on for quite some time. Do data centers need ESD flooring? And if so, what type is best? He says that the industry looked deeper at

centers housing mainly in-use server racks. “When you get into doing electronic components—actually touching the components or getting inside the servers to work on the components—you’re definitely going to want to be protected from static electricity at that stage,” Cooter says. As long as the boards and other electronics are contained in the housing or enclosure, he says that “the chances of messing up that component drop drastically.”

The Flavors Of ESD Flooring

Several ESD flooring options exist, so how do you know which one fits your needs? Jeffrey Lampert, vice president of business development at StaticStop (www.staticstop.com), says there are two types of ESD flooring technology that are best suited to the data center environment: conductive and static-dissipative. Both have

Przyborski says. He suggests high-pressure laminate for environments where light is at a premium and vinyl for areas that require true ESD protection but demand a good color selection and says that in situations where durability and economy are top priorities, concrete sealer may be the right solution. “If you have a Tier 1 or Tier 2 data center,” Przyborski says, “you may not even want ESD protection, and you can pocket that money to spend elsewhere.”

Footwear & Wrist/Heel Straps

The type of footwear worn inside a data center is often overlooked, but can play a significant role in static control. Sneakers, while popular with workers, are too insulative to quickly drain the electrical charges that may build up. “You get out of your chair and you walk over to your server rack or tape drives, and the static can’t

Key Points

- The activities going on in your data center will dictate your need for ESD flooring.
- There are two main types of ESD flooring: conductive and static-dissipative.
- Wrist and heel straps are critical parts of an effective ESD control system.

soles are the most popular, but also the worst for static buildup.

Wrist and heel straps are valuable—but frequently unused—static control devices. Cooter says a wrist strap “really is enough for anything, and you’d actually be compliant working on any of these items with simply a wrist strap.” He cautions that concerns arise when the straps become disconnected or people don’t wear them correctly. He also says that heel straps are a critical component of an ESD flooring system, and the two pieces are designed to function together. “Even if you have the best ESD floor in the world, if you’re not wearing a heel strap, it’s not going to do the job,” he says, explaining that heel straps combat that interference that insulative footwear presents in transferring a charge to ground. “If you wear a heel strap, it has a little ribbon that you tuck into your sock that makes contact with your skin,” he explains. “It [also] has a conductive cup that goes around the heel of your shoe, so you’re maintaining intimate skin to floor contact.” Cooter says that connection between your skin and the floor is what allows the charge in your body to drain properly. ²

“The key is to find what aspects of your design are more important to you. If you have a Tier 1 or Tier 2 data center, you may not even want ESD protection, and you can pocket that money to spend elsewhere.”

- Bettinger West Interiors SE's Steven Przyborski

ESD protection requirements in data centers. “What we found was that in Tier 1 and 2 data centers, where downtime isn’t as critical, they didn’t require the added protection of an ESD floor,” Przyborski explains. “We also found that in Tier 3 and 4 data centers, where downtime would be devastating, they wanted the added protection of an ESD floor.”

Steve Cooter, director of engineering at United Static Control Products (www.ultrastatinc.com), says that many IT environments don’t truly require specialized ESD flooring in part because the electronic components that occupy them have progressed significantly in the past decade. “In reality, the products for data centers are pretty well hardened against static,” he says, adding that manufacturing and repair environments have a higher need than data

static protection built into the product (as opposed to sprays, which Lampert says apply protection only topically and may wear off over time). “Static-dissipative flooring normally has an electrical resistance/meg-ohm reading in the 5 x 108 range,” Lampert says, a rating he recommends for use in closed box environments because there are no exposed circuit boards. He says that conductive flooring products have lower static generation ratings than dissipative flooring, with “an electrical resistance/meg-ohm reading in the 5 x 106 range.” Conductive flooring is a good solution for the most vulnerable environments, but Lampert cautions that redundant precautions should be taken at all times.

“The key is to find what aspects of your design are more important to you,”

decay to ground when it’s on your body,” Lampert says. “When you touch something metal, you’re going to have that shock. You don’t want it to be [on] electronic equipment.” Shoes with rubber or leather

An Affordable Option: Antistatic Mats

One popular electrostatic discharge option that’s flexible and less expensive than most full-coverage floors is an ESD mat. Acting as portable ESD protection, the mats are made from actual ESD flooring and are an economical way to add static control right where you need it, according to Steve Cooter, director of engineering at United Static Control Products (www.ultrastatinc.com). “In the areas where they’re actually building or working on PCs and mainframes, we recommend that they put one of these mats down in front of it during their build,” Cooter says, adding that wrist and/or heel straps should also be worn in conjunction with the mat. “That puts you right in the same category as the people that manufactured that mainframe or server, and they can never complain about your static control with those two simple solutions,” he says, adding that it’s double the protection.

IBM Makes Storage Scanning Breakthrough

The IBM Research Storage Systems group has made a file-scanning breakthrough that has the potential to revolutionize the large-scale storage industry. Using a combination of SSDs and its GPFS (General Parallel File System) technology running on a cluster of 10 eight-core systems, IBM managed to scan 10 billion files on a single system in just 43 minutes. The previous record was 1 billion files in three hours, also achieved by IBM.

IBM's GPFS technology enables organizations to consolidate their storage environments into a single system,

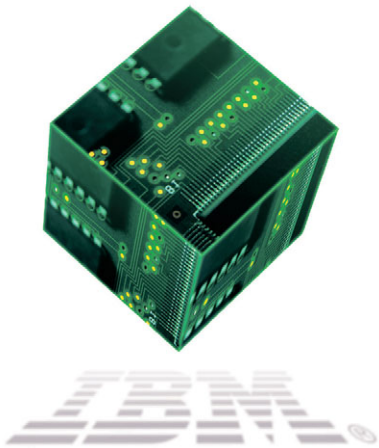
streamline data management tasks, and dramatically lower overall storage expenditures. Although GPFS is making headlines now, IBM has been working on the technology for more than a decade.

Originally introduced in 1998, GPFS is a highly scalable, clustered parallel file system that is designed to excel at high-speed access of large volumes of data, such as in data mining, risk management and financial analysis, weather modeling, and other scientific applications. Between 1998 and 2011, IBM's researchers have been hard at work tuning GPFS to be exponentially more

scalable. According to an IBM spokesperson, “Specific to this breakthrough, two sets of performance optimization have been applied. [Researchers have] developed a massively parallel scan engine to improve performance of scanning operations and [have] developed data placement mechanisms to group all the hot data together and locate them in solid-state storage.”

Enterprise Applications

IBM's GPFS technology can be scaled down for small and medium-sized businesses as well as scaled up to large enterprises. Better yet, “GPFS does not



require new system/server technology to provide these features,” the company

says. “Depending on the performance requirement, customers can select components of different performance levels to build this distributed file system infrastructure.” IBM concedes that customers interested in the new metadata scanning capabilities may require a solid-state storage system.

Those who stand to benefit the most from IBM's GPFS technology include customers that run “applications that require daily data management, such as backup, archival, or ad hoc selection of the data set for just-in-time data processing,” the company says.



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Deploying HD In The Enterprise

Explore The Benefits Of Telepresence Systems

EVEN AS TECHNOLOGIES BECOME more advanced, the need to reach out and connect with people in a meaningful way will never become obsolete. With HD (high definition) videoconferencing deployment, contacting remote customers, training branch offices, or offering in-depth offsite support has never been more informative and engaging. We explore the expert’s perspective on the benefits of going HD, what issues you need to consider, and how easy it can be to get there from here.

Key Points

- Telepresence can reduce operational costs and help organizations discover new opportunities
- HD telepresence goes beyond video and includes HD audio and content sharing technologies
- HD telepresence can increase productivity, let users interact more richly with customers, and even cut hard costs.

How The Office Beats The Road

John Antanaitis, vice president of product marketing at Polycom (www.polycom.com) and David Hsieh, vice president of marketing for Cisco’s (www.cisco.com) emerging technologies group, and both agree that telepresence is big business right now, but saving money isn’t the only reason, and in many cases, it isn’t even the top reason. According to Hsieh, telepresence is all about increasing collaboration across an organization, enabling communication with customers and suppliers, accelerating decision making, and providing a richer customer experience. Antanaitis also highlights the benefits of a telepresence deployment, saying that significant productivity benefits can far outpace simple cost savings from travel, such as better meeting results, greater retention, increased absorption, and learning improvements when using telepresence in education and training scenarios.

Telepresence isn’t just for organizations that travel, though. Antanaitis and Hsieh say there is a strong demand for

telepresence in the education, healthcare, government, manufacturing, finance, and energy industries.

Ideal For Organizations Large & Small

Hsieh doesn’t think there’s an organization out there that’s too big or small for an HD videoconferencing deployment. By simply selecting different endpoints, building off of existing infrastructure, or creating a new dedicated one, organizations can enjoy anything from an immersive, dedicated telepresence room to multipurpose systems and personal video endpoints.

Any sized operation can find an HD videoconferencing deployment to meet its needs, “from mobile telepresence software applications for personal computers and modern tablets to personal telepresence solutions for knowledge workers (doctors, lawyers, consultants, or other professionals and executives) to room-based telepresence solutions for groups of any size (huddle systems for small groups to large custom installations in classrooms, auditoriums, or houses of worship) to immersive telepresence suites for the most natural, lifelike collaboration over distance.”

Antanaitis also stresses that complexity isn’t necessarily a standard feature, “Deployments can be as simple as software on the tablet or a PC with Web cam and headset or include flat panel displays, HD peripherals, and even environmental treatments that optimize the complete experience including lighting, sound, and on-demand content displays that rise and lower automatically as needed.”

The HD Difference

Hsieh recognizes that HD has a valuable place in the boardroom and beyond, “Video quality is an essential element of an end-to-end video experience that re-creates face-to-face communication.” Some HD telepresence systems utilize multiple, specially designed high-definition cameras capable of delivering lifelike high-definition images, and even enable multiple participants to make direct eye contact. Best of all, many of these systems don’t require specially trained personnel on hand to initiate or join a conference. According to Antanaitis,

“High-definition video allows participants to correctly absorb the nuance of body language and subtle facial expressions for enhanced communication.”

“High definition is critical, but if it is limited to talking heads video, it has limited value.” Many HD videoconferencing systems take audio into consideration as well, using sensitive microphones capable of capturing HD voice for optimal clarity, which is particularly important when communicating between dialects and in multicultural scenarios.

Visual aids, shared workspaces, and other collaborative technologies also play an important role in a modern HD telepresence system. Antanaitis sums it up by saying, “high-definition content sharing allows participants to share their work product and collaborate in finite detail.” A comprehensive HD telepresence system requires HD voice, video, and content to maximize its value to the organization.

Cost Considerations

Antanaitis admits that HD deployments do have a cost premium to consider, but it might not be as steep as you’re thinking: “While HD was once limited to only very expensive telepresence solutions that consumed heavy bandwidth, there are multiple telepresence price points available today that offer HD video, with room systems beginning below \$5,000.” In addition, organizations can focus on bandwidth conserving technologies, such as the H.264 High Profile standard, which can deliver faster ROI and reduced TCO.

Cisco argues that the cost is worth it in the long run. Hsieh says, “An investment in video can enable [organizations] to make decisions faster, enhance employee productivity through increased collaboration inside and outside of their organization, and scale their business by developing new business models.”

Hsieh also gives a concrete example of how HD telepresence can help organizations uncover new opportunities. Citizen’s Bank recently launched a new video banking pilot that lets mortgage and wealth management experts communicate directly with remote branches “to quickly and conveniently answer customer questions

and provide new banking services directly into the branch.”

Unforeseen Upsides

Because a firm with a comprehensive HD telepresence system no longer needs employees to travel, it can benefit from hundreds, even thousands of hours in reclaimed productivity. Polycom alone has seen 8,300 employee hours in productivity gains. Based on a 40-hour week, Antanaitis says, “that’s more than four years of work time reclaimed and put to productive use, saving Polycom roughly \$600,000. Add to that the savings of \$626,017 in hard costs and the overall bottom-line benefit jumps to \$1.2 million.”

Hsieh adds, “While a decrease in travel and reduced operational costs can be one benefit of [an HD telepresence system], on the whole, TelePresence enables greater productivity, new and richer customer experiences, and better scalability across an organization.” And because it’s simple to digitally record any communications that occur over an HD telepresence system, users can broaden the audience by streaming the conference over the Web or revisit it as video on demand.

The HD Edge

Regardless of which HD telepresence platform you opt for to get the most out of your remote business interactions, an HD telepresence system can lower costs and create new opportunities. After that, it’s just a matter of taking advantage of those opportunities. [P](#)

Core Elements Of An HD Telepresence System

- Broadband network infrastructure
- One or more HD-capable video cameras, preferably one per attendee
- One or more microphones, preferably one per attendee
- Content-sharing equipment and software

U.S. PC Sales Showing Signs Of Recovery

U.S. PC sales through distributors continue to grow while European sales continue to fluctuate, according to the current PC Index from the GTDC (Global Technology Distribution Council), an industry consortium representing leading global IT distributors. The GTDC constructs the index primarily using members’ sales-out data as independently aggregated by The NPDP Group Distributor Track for U.S. sales and the Context SalesWatch for European sales.

For Q2 2011, U.S. sales charted a 151 index mark, up 14 points from Q1 2011 and 19 points from Q2 2010. Europe’s

index mark hit 92 for Q2 2011, down seven points from Q2 2010, leading the GTDC to claim that overall European unit volume was flat and offset by a decrease in average prices, including notebooks, the largest segment in the PC category, which also includes desktops, tablets, workstations, and servers.

The GTDC started the index in Q1 2009 when PC sales bottomed out due to the recession. The current U.S. PC Index score rates a record 50 points higher than the 100 mark the index began at in Q1 2009. Europe’s score fell 17 points in Q2 2009 and has fluctuated significantly

ever since, due to more pronounced seasonality effects and more dynamic economic conditions across countries tracked in the region’s database, the GTDC says.

Notable Findings

Of note for SMEs from the current index, says GTDC CEO Tim Curran, is that PC power remains a key driver of efficiency and cost savings in business. He adds that the current U.S. PC Market Index reflects considerable resilience across the overall category. Curran says that combined solution providers and distributors provide a unique value to vendors

that is impossible to match any other way, particularly where reaching and addressing the IT requirements of SMEs is concerned.

“Vendors cannot independently and cost-effectively replicate the value that the channel delivers,” Curran says. “Solution providers and their distribution partners collaborate to meet many unique SMB requirements—not just ensuring that small and midsized companies have immediate access to comprehensive IT solutions, but also addressing the diverse

services they require on a daily basis. Whether configuring solution components or addressing pre- or post-sale technical support requirements, for example, distributors and solution providers have expertise across a full range of products and brands that individual vendors cannot provide on their own.”

Curran says the GTDC is optimistic concerning future index scores because “IT distributors are in a strong overall position as vendors increasingly recognize that together with solution providers, they are the best, most cost-effective way to reach and serve the SMB market.”



Network Traffic Prioritization

Increased Convergence Leaves SMEs Seeking Ways To Mitigate Congestion

IT MAY SEEM LIKE EONS AGO, but the now-omnipresent notion of “shared networks” has been woven into the delicate fabric of our daily lives since well before the dawn of the information age. The public switched telephone system, the first bona fide shared network in the most general sense of the expression, provided for reliable copper-based voice communications as long as the system possessed an adequate capacity to support the physical point-to-point connection. Years later, the advent of packet-based networks has brought with it an untapped potential to access immeasurable amounts of data.

Unfortunately, each new application introduced to the network often brings with it hidden bandwidth contention complexities that frequently do not manifest themselves until well after deployment is under way. By default, all IP-based traffic receives an equal claim on capacity, and today’s 1Gbps network infrastructure provides for connections with very low latency rates. Divergent applications, however, have unique requirements for bandwidth and therefore handle delays and retransmissions quite differently. As a result, this escalating convergence of traffic from file sharing, messaging, voice, video, desktop clients, social media, and beyond has left SMEs sometimes struggling with the congestion and associated limitations imposed by legacy data-only network topologies.

To mitigate limitations and better address

competing demands for scarce network resources, administrators need to assign appropriate levels of precedence to the differing traffic types making their way across the corporate wire. Classifying network traffic allows network administrators to organize packets into categories on the basis of whether the traffic matches specific criteria. Here are some tips for how to prioritize your network traffic.

Establish A Baseline

It’s vital to understand existing network conditions before even attempting to determine and assign appropriate classifications. To do so, administrators need to conduct a network analysis in

order to best determine any broad groupings into which the traffic can be divided.

“The first step is to take advantage of some performance monitoring to understand exactly what traffic is going across the wires,” says Jim Frey, managing research director at Enterprise Management Associates. “That can be done either using usage records such as NetFlow or by using a packet analyzer to occasionally check and see just who is using the network and what they are using it for.”

The various groupings can then be organized into unique classes, each with its own set of individual characteristics and priorities. “Once you know what is there, then you are in position to start looking at what you should prioritize,” Frey says. This type of classification, which is commonly referred to as class of service, or CoS, in its most basic implementation, allows for a best-effort approach to managing overall network quality. CoS serves as the foundation for enabling the more granular quality of service, or QoS, features found in today’s networking infrastructure. Once grouped into categories, traffic can then be subjected to specific QoS policies.

According to Frey, QoS policies are ideal for handling most critical traffic such as key enterprise applications and latency-sensitive traffic such as VoIP and videoconferencing. A QoS implementation ensures that latency-sensitive applications always receive the requisite amount of bandwidth. In order

to prioritize traffic in this way, administrators must first create a series of QoS policies, which might include faster forwarding by intermediate routers and switches or reduced probability of the traffic being dropped due to lack of buffering resources.

“The most critical links for managing traffic are typically the WAN links between HQ/ data centers and any regional or remote offices—WAN optimization is a great approach for that and commonly includes the ability to apply QoS policies,” Frey explains.

Leverage Priority Techniques

There are several types of network traffic priority systems currently in use. Janki Sampat, head of market innovations at Zensar Technologies (www.zensar.com), sees two distinctive QoS data priority techniques being utilized by small to mid-sized enterprises interested in ensuring seamless voice, video, and data communications: DiffServ (Differentiated Service) and RSVP (Reservation Protocol). When using these techniques, real-time applications such as VoIP or videoconferencing are placed into a strict priority queue above all other traffic types, with the remaining bandwidth being allocated accordingly.

“DiffServ prioritizes certain types of traffic over others, resulting in faster handling, more consistent throughput, and decreased packet loss. Meanwhile, RSVP allows the

reservation of network resources in each node, creating a reserved end-to-end path through the network for the data to travel,” Sampat explains.

“When enabled on hardware with Netflow and sFlow support, VLAN-based QoS effectively guarantees that a media-ready network architecture can properly carry voice, video, and data traffic without difficulty,” Sampat continues.

“In general, most enterprises are either using some form of Differentiated Services code point such as DiffServ, which is set up within routers and switches, and/or WAN optimization controllers for their most sensitive links,” Frey says.

Key Points

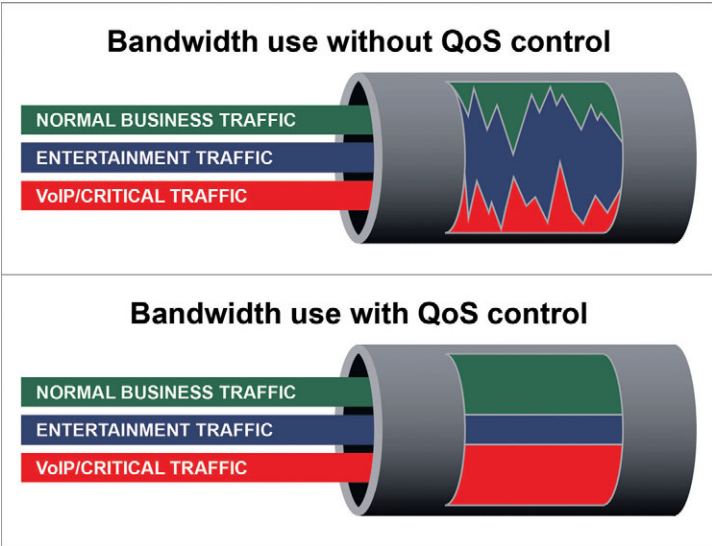
- Without any prioritization of traffic in place, network applications compete against each other for finite network resources.
- Administrators must conduct a thorough analysis of their existing network traffic patterns before establishing QoS policies and instituting an overall traffic solution.
- Businesses of all sizes can benefit from the classification and prioritization of traffic by reducing network bottlenecks and improving quality of communications.

No Entity Is Immune

Frey contends that the corporate data center from a data communications perspective has historically not worried about prioritization and has instead focused its attention to the more traditional aspects of the OSI (Open Systems Interconnection) networking framework. “But in my opinion, traffic prioritization becomes increasingly important, in part driven by the recognition that it is a means to ensure that IT resources are being used as efficiently as possible and that the shift towards internal private cloud operating models can be implemented in a way that reflects new service-oriented objectives,” Frey says.

Sampat also sees data centers attaining additional benefits from the prioritization of network traffic over LAN and WAN segments. “Enterprises can also gain greater availability for mission-critical data as well as increased return on investment of existing infrastructure,” Sampat says. “The prioritization of network traffic offers easily identifiable benefits such as quicker security updates and software deployments, more robust storage and disaster recovery functionalities, and improved voice and video.”

While the concept of network traffic prioritization might seem more applicable to large networks at first glance, Frey argues that businesses of all sizes—even SMEs—can benefit from dealing with the topic head-on. “Any organization that is deploying converged, IP-based voice and/or videoconferencing really cannot afford not to address traffic prioritization,” Frey says. “Without it, those latency/load-sensitive traffic types will suffer, and communications will break down.”



Managing a network’s quality of service can help prevent spikes in latency and improve the quality of critical applications such as VoIP and videoconferencing.

News

Survey: Mobile Network Access Presents Security Challenges

Courion, a U.S.-based software company that develops software products for computer networks, conducted a survey of 988 IT decision makers at large enterprises to gauge the confidence level of these leaders in their organizations’ ability to control access to their corporate information through mobile devices and cloud services.

The survey addressed respondents’ overall confidence level regarding proper access to resources in the enterprise. On a scale of 0 to 5, where 5 is “very confident,” 57% marked either 4 or 5 to indicate their

confidence that their companies could control access to corporate network resources, and 40% were very confident in their ability to handle employee access via mobile devices or laptops. Just 34% were very confident about cloud access security, which Rachel Weeks, director of marketing at Courion, says is largely because many firms are just beginning to get a handle on how cloud applications will work with their particular IT infrastructure. “[Enterprises] are still in the process of determining how to manage secure access to applications and data in the cloud,” she explains.

The survey revealed that mobile access policies are still lacking in enterprises. Courion’s report shows that 21% of respondents either do not have policies in place to govern the use of personal mobile devices or were not aware whether such policies existed, even though about 69% of respondents allowed personal mobile devices to access their enterprise networks. Weeks

found this rather surprising, given the proliferation of mobile devices and cloud applications.

Take Action

The takeaway from Courion’s survey is that more and more employees are accessing their companies’ data outside of the enterprise, whether it’s via mobile device or the cloud, and although this access is often necessary to ensure productivity,

it is causing problems for many organizations. In fact, almost 10% of those surveyed revealed that their companies had experienced a data breach from the loss of a mobile device.

Courion advises enterprises to create strategies and policies that “define, assess, enforce, and verify that the right users have the right access to the right resources and are doing the right things.” You can’t stop the proliferation of mobile network access, but you can stop that access from landing you in hot water with a data breach.



PRODUCT SPOTLIGHT

Data Center/IT Training

Training Center

Global Knowledge



Global Knowledge

Global Knowledge is the worldwide leader in IT and business skills training. The company delivers courses via training centers, private facilities, and the Internet, letting customers choose when, where, and how they want to receive training programs and learning services. Global Knowledge specializes in high-quality, hands-on data center training courses that are delivered by accomplished cross-domain experts. Instructors are certified Cisco Systems and VMware Certified instructors with real-world experience. The company's broad-based data center curriculum includes VMware, Cisco, Sun, IBM, Red Hat, and Microsoft courses as well as other subjects.

- Learn from experienced instructors and award-winning curriculum
- Engage with custom hands-on labs and exercises
- Choose from robust delivery options
- Train a local group or a dispersed workforce
- Select from more than 1,200 courses

Best For: IT training for the individual or for the enterprise organization that requires skills development or certification.

NetCom Information Technology


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INFORMATION
TECHNOLOGY


NetCom Information Technology, headquartered in New York, has training centers located in 18 states across the country and offers training solutions for more than 1,000 technical, application, and project management courses to Fortune 500 companies, businesses, government agencies, and individuals. NetCom's subject matter experts provide authorized hands-on education in the latest technologies from leading vendors, including (ISC)2, Adobe, Autodesk, Check Point, Cisco, Citrix, CIW, CompTIA, EC-Council, Microsoft, Novell, Oracle, PMI, and others. NetCom is an authorized testing center for Sylvan Prometric, VUE, and Certiport. The company is also a New York and New Jersey Workforce Training Provider and a licensed school registered with the New York State Education Department.

- Provides world-class training and certification preparation for the most in-demand computer technologies
- Offers authorized career training classes in Microsoft, Cisco, Adobe, PMI, Autodesk, Oracle, Novell, CompTIA, and more
- All courses and boot camps are hands-on, led by certified instructors using the latest equipment
- On average, NetCom instructors have 11 or more years of experience in the subjects they teach
- Curriculum options aimed at helping students become Web site developers, database administrators, computer programmers, graphic designers, security specialists, and project managers
- In the last decade, NetCom has delivered training to thousands of individuals and corporations

Best For: IT, security, and project management training for beginners and also for experienced staff looking to enhance their careers or enter a new market.

Training Center

TechSkills




TechSkills is a nationally recognized leader in education delivery, specializing in skills and certification training for careers in information technology, healthcare services, and business. TechSkills' teaching methodology combines elements of traditional instructor-led education, the latest online learning tools, and extensive hands-on skill-building to create an effective and efficient learning process. Students control what they learn, when they learn, how they learn, and how rapidly they progress. Based in Austin, Texas, TechSkills operates more than 25 campuses in 16 states. TechSkills campuses are licensed in each state in which they operate, and select TechSkills campuses are nationally accredited by the Accrediting Council for Continuing Education & Training.

- Offers personalized programs that include morning, afternoon, evening, and weekend classes; online and on-campus study options; intensive small group "microlab" training sessions; and the latest online learning tools
- Course customization lets you skip what you already know and progress at your optimal speed
- Hundreds of hands-on lab activities to provide real-world experience
- Online access 24/7 lets you work through on-the-job scenarios in real time
- More than 90% of TechSkills' students pass their industry certification tests on their first attempt; if you don't pass your certification test the first time, TechSkills will pay for one retake for every successfully completed course
- Job placement assistance that includes personal coaching, help with résumés, and career development workshops
- Multiple programs, including Microsoft, Cisco, Oracle, and IT security certification

Best For: Students seeking certification in IT, technical, or business areas.

United Training



Actually a consortium of independently owned training centers, United Training concentrates on helping its members provide high-quality IT training from regional providers. Since 2000, the company has been delivering training nationally and developing strategic relationships with manufacturers and vendors of IT-related products and services. The company's goal is to provide quality training throughout North America on any IT training product, anywhere, and at any time. United Training offers in-class, private, and mobile classroom training options, and many members offer Web-based virtual classrooms. United Training regularly offers free Webcasts. In addition to the typical communication channels, members and students can comment on and communicate with the company via Twitter and Facebook.

- Microsoft Gold Certified Partner
- Courses offered in most states and in Canada
- Hundreds of courses offered in more than 50 technology areas, including Web development, programming, CRM, SQL Server, and Exchange
- Many courses offered for Cisco, MCSA/MCSE, and other certifications

Best For: IT staff seeking basic or advanced certification in multiple areas and employees needing introductory coursework in popular business applications.

Centers

New Horizons
Computer Learning Centers



With more than 320 locations in 70 countries, New Horizons is the world's largest independent IT training company. For the past 29 years, the company has delivered a full range of IT training and certification and business skills education. The company has helped more than 25 million students and offers courses in hundreds of locations around the world.

- 320 New Horizons locations worldwide, specializing in Microsoft and Cisco products and technology
- Cisco's North American Learning Partner of the Year for 2009-2010
- Microsoft's largest worldwide training partner
- Flexible training: mentored learning, instructor-led classroom, and online
- The only provider with Mentored Learning capability that gives you all the benefits of an instructor while learning at your own pace
- More than 90 authorized Cisco locations in the United States
- Local centers, instructors, and customer service teams that tailor learning paths specifically to your business/career goals

Best For: New and experienced IT staff, including experienced Microsoft technical staff looking to cross over into Cisco routing, switching, and voice products, and those seeking additional ways to increase their marketability. Also ideal for help desk professionals looking to improve their skills and enhance their career options.

Contact: (714) 940-8000 | www.newhorizons.com

Unitek Education



Unitek Education is the only IT training company in the world to have won Learning Partner of the Year awards from five different IT market leaders. Microsoft, Citrix, CompTIA, and Red Hat have all acknowledged the company's relentless drive for training excellence. Unitek is a learning partner for Microsoft, Citrix, Cisco, CompTIA, Red Hat, and NetApp and is the only company in the United States to have achieved the dual status of Microsoft Gold Partner for Learning Solutions and Cisco Learning Partner. The company provides multiple learning modalities, including the Smart classroom, which enables students to experience all the benefits of a live instructor-led class from the comfort of their homes or offices. Unitek's accelerated "boot camps" are aimed at teaching specific skills, tools, or technologies in a short period of time in a zero-distraction environment. Unitek is an authorized Prometric testing center, operating multiple exam sites in Fremont and Sacramento, Calif.

- Courses offered in multiple locations as well as online
- Onsite training available
- Courses offered for both end users and corporate administrators

Best For: IT staff seeking basic or advanced certification in any of several areas: Microsoft, Cisco, NetApp, Red Hat, Citrix, Linux, and others.

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SIX QUICK TIPS

Avoid Win7 Migration Mistakes

With Some Planning, A New OS Doesn't Have To Be A Headache For IT

FOR THE GENERAL CONSUMER, the introduction of a new Windows operating system can often be cause for celebration. For business and enterprise users, each new OS seems to bring a mix of nice new features and unwelcome ones. And for IT and data center managers, each new OS brings migration concerns that are increased by orders of magnitude for high-level users. The same is true for Microsoft's latest OS, Windows 7.

To make the process easier, we asked industry experts for their favorite tips on avoiding mistakes when migrating to Win7.

✓ **Accept The Inevitable & Adjust Your Attitude**

Regardless of the size of your business, if you're a Windows shop, it's just a matter of time before you migrate to Windows 7. Don't make the mistake of thinking you can leapfrog operating systems—that will only make it harder when you do switch down the road.

General wisdom says that migrating to a new operating system is disruptive, but if you're prepared, migration doesn't have to be painful, nor does it have to have a negative impact on your enterprise, says Christine Ewing, director of product marketing for Symantec's Endpoint Management Group (www.symantec.com).

"Businesses can turn a migration into a transformation," she says. "As the year moves forward, more and more people have made that transformation. In fact, by the end of 2010, 19% of the global IT workforce will be working with Windows 7."

Consider that a Win7 migration is a unique opportunity to increase efficiency in your IT organization and to your business, Ewing adds. "For example, this is an excellent time to update client security," she says. "The same holds true for backing up the valuable data on your clients. And this is as good a time as ever to implement a virtualization strategy because many of your business-critical applications and processes could be disrupted due to compatibility issues."

Also, while migrating isn't free, it's an opportunity to save money, Ewing adds. "For example, application virtualization can enable the harvesting of unused licenses," she says. "While you probably need to pay for Windows 7, you don't need to pay for licenses that you aren't using."

✓ **Carefully Manage Desktop Resources To Lessen Support Costs**

Win7 demands a faster processor, more RAM, and better graphics than Windows XP did to run the same applications, so the tax on your systems is going up when you use it. It will go up even more if migrating from 32-bit WinXP to 64-bit Win7, and still more if legacy apps have to be run in virtual WinXP mode, notes Al Hartmann, chief scientist with Ziften Technologies (www.ziften.com). Be careful that what you're bringing over to Win7 doesn't create a needless drag on productivity.

"Any legacy Web-based applications originally written for IE6 may force IE8 or IE9 to

throttle back to less efficient compatibility mode," Hartmann says. "Windows 7, like other desktop OSes, has no inherent focus on efficiency, so don't count on a hardware refresh and a system re-image to buy you much performance and capacity breathing space, especially during the transition."

✓ **Designate A Point Person**


Launching a major project such as the migration to a new OS comes with a lot of tasks up front: assessing your network, identifying what needs to be done and purchased, and setting up test scenarios before doing the migration, to name a few. Don't be rudderless during this important time—make sure your team has people who are ready and willing to take on those pre-migration tasks, advises Annette Dow, CEO of Binary Research.

"We usually find that most techs do not like planning," Dow says. "That's understandable, but someone needs to plan. It ends up costing a huge amount more money by trying to take the short-cut and not plan than it would to allow

your techs to take the time to assess and plan."

✓ **Tailor Win7 For Enterprise Use & Keep It There**

Win7's one-size-fits-all approach to configuration defaults, plus new features focused on the consumer market, add what some feel are unnecessary optimized functionality in the enterprise environment. Therefore, you should customize your OS for exactly what you need and no more, or migration gains will erode, Hartmann warns.

"A steadily expanding mix of legacy and new applications compounds the demands on desktop hardware resources and must be intelligently managed to avoid application sprawl and overtaxed systems," he says. "These inefficiencies and management problems become multiplicative in a virtual desktop infrastructure environment hosting hundreds of Windows guests per server. Win7 doesn't make value judgments about high-business-value applications and uses no rational logic in when or how competing applications run." 

BONUS TIPS:

✓ *Don't forget to manage administrative rights.*

"While lots of focus in IT security is given to concerns over such areas as firewall and antivirus, privilege management is often forgotten even though it is the foundation of a secure, layered-approach environment," says Gil Rapaport, president and co-founder of Viewfinity (www.viewfinity.com). "In migrations to Windows 7, the most simple security solution—controlling who has administrative rights—is often overlooked."

✓ *Take inventory so you don't leave anything behind.*

"Understand what user data is out there, where it's currently located, how you will preserve or move it, [and] where it will be placed after the migration," advises James Wedeking, solutions director at Technisource (www.technisource.com). "Nothing can hurt the deployment more than losing the CFO's critical spreadsheets."

Most Cost-Effective Tip:

✓ *Don't Pinch Pennies*

Total cost of ownership for PCs at the enterprise level averages \$1,580 per user per year, according to Forrester Research, so it makes sense that enterprises should spend what they need to spend to make sure they get the most out of a new OS. "Pinching pennies on the migration in an effort to minimize short-term investment may only exacerbate future IT support costs, as the familiar cycle [of OS migration] repeats itself," says Al Hartmann, chief scientist with Ziften Technologies (www.ziften.com).

Most Practical Tip:

✓ *Test & Test Some More*

You want to make sure everything you're running now will run on your new OS as smoothly as it does now. That means a thorough dry run, according to James Wedeking, solutions director at Technisource (www.technisource.com).

"Before deploying, make sure you have an inventory of everything that is in place out there, both hardware and software," Wedeking says. "Then, test your new image against your desired configuration to make sure that everything works properly."



BUYING GUIDE



BUYING TIPS:
KVMs

WHEN IT COMES TO buying a KVM switch for your data center, you'll find that there are a variety of features and key functions that you'll need to consider. "Some features and functions will be particularly valuable based on your specific environment and situation," advises Brett Femrite, sales manager at Rackmount Solutions (www.rackmountsolutions.net). Here is a look at what you should consider when selecting a KVM for your enterprise.

Devices and users. KVMs have a limited amount of servers and devices they can directly control. To that end, Will Beene, rack specialist and technical account manager at Rack Solutions (www.racksolutions.com), recommends that SMEs ask how many users can be supported both locally and remotely. KVMs are offered in a variety of port densities, so you should be able to find one that perfectly fits your needs.

Distance. Femrite notes that you should also determine from how far away you need to be able to control the connected devices and the distance from the KVM to the devices. If the servers are too far away for the cabling to reach, you may need to invest in a KVM extender that converts the KVM signals and allows them to travel over a greater distance. You could also invest in KVM over IP. "KVM over IP allows the servers to be further away from the KVM


switch; however, Service Access Modules (SAMs) are required," Beene says. "You have to weigh the cost vs. the benefits. In large organizations with distributed systems, KVM over IP is an easy method of administration and management."

Connections and OS compatibility. Different servers may offer different types of connections, such as PS/2, USB, or Sun. The KVM you select will need to offer ports for all the types of servers and devices you need to connect to. You'll also want the KVM to support the different operating systems and hardware platforms in your data center. Another connection concern is whether you'll be using a monitor and servers with a VGA or DVI input.

Local and remote connectivity. KVM over IP also allows for IT staff to control servers from anywhere using an Internet connection. The Web connection option is convenient if the network administrator works in a location away from the servers or will need to check on something at odd hours of the night. The KVM over IP

switch will also feature an encryption protocol that will help secure the data you send over the network.

Future upgrades. You should consider the cost, benefits, and expandability of the KVM switch, especially if you plan on upgrading in the near future. "Organizations that administer and manage large numbers of servers

will benefit from being able to cascade KVM switches as they grow and expand," Beene says. 



BUYERS' CHECKLIST

- ✓ How many servers or devices do you want to control?
- ✓ What types of connections does the KVM need to offer?
- ✓ Do you need to manage the servers or applications locally and/or remotely?
- ✓ Will the KVM need to be expandable in the future?
- ✓ Is BIOS-level support available?
- ✓ Will the KVM be secure enough for your data center?
- ✓ Does the KVM support your OSes and hardware?



KEY TERMS

Cascading. Connecting KVM switches together in a chain by attaching one switch to the computer port of another.

Converter. An add-on device that converts the KVM signal from one platform, such as Windows, to another, such as Apple.

Emulation. A switch's ability to imitate a signal so that the PC thinks that it's directly connected to the KVM.

IP (Internet Protocol). The protocol that enables admins to route commands across networks in order to work remotely.

KVM extender. Converts the KVM signal to travel over a greater distance than it would have previously, eliminating the need to control the servers from the server room.

KVM sharing. The ability of a KVM switch to be accessed and controlled by more than one person.

OSD (on-screen display). A display that lets admins control the switch and view information about the connected computers without needing to use a PC.

Resolution. The maximum pixel height and width the KVM can display.

Scan rate. The time it takes for the KVM to switch to a different port.

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PRODUCT SPOTLIGHT

KVMs

Product

AdderView CATxIP 5000



Description

The AdderView CATxIP 5000 is the culmination of Adder's KVM over IP expertise to date. This device offers four non-blocking simultaneous IP connections together with a local port (five separate users) and allows the user to control 16 separate devices. The AdderView CATxIP 5000 is small and compact, enabling you to fit two units side by side to support 32 computers and 10 sessions in just 1U of rack space.

- Four simultaneous users connect via IP to any of the 16 connected devices
- Direct connection for one local user to connect straight to the switch
- LDAP integration
- Integrated RS-232 control for managing external devices
- ADDER.net management software automates the task of managing network control hardware

Best For: IT administrators who need to control a large group of computers over IP from a single KVM switch.

Price: \$1,750

AdderView PRO MultiScreen



The AdderView PRO MultiScreen is a professional-grade KVMA switch that delivers ultimate flexibility for users who want to share high-resolution screens and modern USB peripherals between multiple computers. The AdderView PRO MultiScreen enables up to four multihead computers to be controlled from a single high-resolution KVM console using either dual-link DVI or high-definition analog video links.

- Features Adder's True Emulation technology, which ensures that the full characteristics of the connected USB keyboard and mouse are passed to every system
- Dual-link DVI-I with extended profile DDC EDID
- Includes two independently switchable USB 2.0 channels and an audio channel
- Supports resolution of 2,560 x 1,600
- Broad USB 2.0 Hi Speed device support
- Available in dual-, triple-, and quad-head versions

Best For: IT administrators, post production, graphic designers, detailed medical imaging, and broadcast studio professionals.

Price: \$1,795

Aten CS1768



The CS1768 KVM switch from Aten gives users access to and control of up to eight computers from a USB keyboard, a USB mouse, and a dual-interface monitor that can toggle between DVI-I and VGA inputs. The unit can be cascaded up to three levels, which allows for control of up to 512 computers from a single console. It also features Aten's Video DynaSync that optimizes display resolutions, so users will always be viewing the screen at the server or workstation's optimal video resolutions. Audio from the computers can be output to two sets of speakers.


- Supports both digital (DVI) and analog (VGA) video; mixed operation possible
- DVI single link (1,920 x 1,200); VGA (2,048 x 1,536)
- Supports widescreen resolutions
- Port selection: OSD, hotkey, pushbutton
- Built-in two-port USB 2.0 hub
- Console audio ports on front panel for easy access
- Auto Scan Mode for monitoring all computers

Best For: Organizations that need support for high-resolution video and stereo audio from the KVM.

Price: \$599.99

Product

Minicom Smart 232 IP Switch



Description

The Smart 232 IP Switch from Minicom is a multiuser, remote access IP KVM switch for data center and server room rack environments. The Smart 232 IP allows two remote administrators and one local user to access and control up to 32 servers through a standard Web browser. The Smart 232 IP measures 1U for convenient rack mounting with the included rackmount kit.

- Three simultaneous KVM users (two remote and one local) and two additional serial session users
- Utilizes the highly secure 256-bit AES encryption protocol with multilayer user rights
- Absolute mouse support means no need to change mouse setting in Windows OS
- Innovative Minicom KVM over CAT 5 technology
- Multiplatform support for PS/2 and USB
- Extends distance between servers and switch up to 30 meters/100 feet
- Seamless power control

Best For: Companies in need of a versatile, high-performance KVM with central management capabilities.

Price: \$2,295

Rack Solutions Rackmount KVM



The Rackmount KVM from Rack Solutions is a low-cost, space-saving monitor and keyboard mount that only uses 2U of rack space and works with square, round, or threaded hole racks. You can use your own monitor with this KVM, or you may select an option that comes with a 17" or 19" monitor. The mounting depth adjusts from 15.5" to 31.5" to give you flexibility when installing it in your rack.

- A fraction of the cost of typical OEM solutions
- Works with any 4 post, 19" rack (2 post options also available)
- 28" travel rack rail equipped with ball bearings for extra support and easy slide control
- Compatible with most KVM devices
- Trackpad keyboard supports PS/2 and USB connections
- Comes assembled with keyboard and monitor cables already routed; the only assembly required is the monitor
- Cable management arm included

Best For: Enterprises that need a low-cost, feature-filled KVM that conveniently slides into the rack when not in use.

Price: Starts at \$399 (without monitor)

Contact: (888) 903-7225 | www.racksolutions.com/kvms

Rackmount Solutions CyberView Matrix High-Density CAT 5 KVM (UIP-3202)



The CyberView UIP-3202 from Rackmount Solutions is a 1U high-density CAT 5 KVM switch with 32 ports. It offers a maximum distance of 40 meters (130 feet) between your server and KVM switch with the rear cable management using CAT 5 cords. With the UIP-3202, you can mix PS/2, USB, and SUN with multiplatform switch capability. A second user can work securely over 128-bit encrypted IP access using the Web interface to control multiple servers down to the BIOS level.

- Use of the RJ-45 CAT 5 interface allows for a higher number of ports in smaller density
- Traditional CAT 5 cords provide simpler cable management compared to coaxial cables
- 128-bit secure browser-based user access from anywhere in the world over IP
- Advanced user profiles and configurable OSD hot-key combinations

Best For: Enterprises that need a KVM switch that offers increased density, increased distances, enhanced cable management, and multiplatform capabilities over traditional KVM switch platforms.

Price: \$1,543

Contact: (866) 207-6631 | www.rackmountsolutions.net

PRODUCT SPOTLIGHT

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Black Box ServSwitch DKM Switching System



The ServSwitch DKM KVM Switching System from Black Box comprises modular housing chassis with two, four, six, or 21 slots and transmitter and receiver interface cards. The DKM extender setup provides the widest range of possible combinations, which makes it easy to customize for specific applications. The DKM switches and modular cards work over single- or multimode fiber cables or over CATx cables. The switches also can be set up in a variety of configurations, including matrix switch, dual- or quad-head KVM switches, Share Mode, and Classroom Mode.

- Four housings are available: desktop housings for two, four, or six boards or a 19-inch, 4U rack for 21 boards
- A redundant power supply option is available for some housings
- Modular transmitter and receiver cards can be copper- or fiber-based
- Extend DVI-D video, USB HIDs, audio, RS-232, or USB 2.0

Best For: KVM extension setups that require flexibility.

Price: Housings start at \$164.95; interface cards start at \$119.95

Contact: (724) 746-5500 | www.blackbox.com

Black Box ServSwitch Secure KVM Switches with USB



Black Box ServSwitch Secure KVM Switches with USB are EAL4+ Certified and TEMPEST Level 1 Qualified, surpassing the security profiles of most other KVM switches. ServSwitch Secure switches provide control and separation of up to four PCs connected to secure and non-secure networks through just one keyboard, monitor, and mouse. Users can safely switch between as many as four computers operating at different classification levels without worry. ServSwitch Secure KVM Switches with USB prevent data from leaking between ports and to the outside world and prevent data from being stored in the device.

- Prevent electronic snooping
- Available in two- or four-port models
- Support DVI-I video
- Feature high port-to-port isolation and external tamper-evident seals
- Some models include support for card access readers

Best For: Military and governmental organizations that depend on keeping sensitive data from leaking to the outside world or between secure and non-secure systems.

Price: Starts at \$475.95

Contact: (724) 746-5500 | www.blackbox.com

IOGEAR Dual-Link DVI KVMP Switch



The IOGEAR Dual-Link DVI KVMP Switch (GCS1642) shares the highest resolution (up to 2,560 x 1,600) of wide-screen video on two dual-link DVI monitors with support for 3D graphics. The GCS1642 features two USB 2.0 peripheral ports for asynchronously sharing USB devices between computers, while a powered USB hub can be attached to the peripheral ports for added functionality. Audio and microphone support for sharing speakers and a microphone are an added convenience. Coupled with patented DynaSync technology, the GCS1642 remembers a monitor's ideal resolution and refresh rate, making it possible to boot all computers simultaneously and switch back and forth while maintaining the native video settings of each monitor.

- Can share high-speed USB 2.0 peripherals such as printers, scanners, and external hard drives between two computers
- Complete keyboard and mouse emulation for error-free booting and real-time switching
- Supports MAC keyboard and special keys
- Full support for DDC, DDC2, and DDC2B monitors
- Firmware upgradeable

Best For: Computer-aided design and manufacturing, high-end desktop publishing, graphic design, and video editing.

Price: \$279.95

Rackmount Solutions IP DB-15 KVM Switch



The IP DB-15 KVM Switch from Rackmount Solutions lets you access up to 128 servers from anywhere in the world over IP. It comes in both an eight-port (IP-802) or 16-port (IP-1602) version with three-in-one KVM cable in 6-, 10-, 15-, and 33-foot lengths. The local console supports a resolution up to 1,920 x 1,440 and has two USB Type A ports for a keyboard and mouse. The remote console has a resolution of 1,600 x 1,200 and can accommodate up to 15 user logins.

- Eight or 16 ports in 1U of rack space
- 128-bit secure browser-based user access from anywhere in the world over IP
- Cost-efficient remote server management
- Multiplatform support: PC, Sun, IBM, HP, and Dell
- Supports Windows Vista/2003/XP/2000, Linux, Netware, Unix, and DOS

Best For: SMEs in need of a cost-efficient way to manage up to 128 servers remotely.

Price: \$913 (16-port), \$724 (eight-port)

Contact: (866) 207-6631 | www.rackmountsolutions.net

Trendnet TK-804R



Trendnet's eight-port TK-804R KVM switch features an on-screen display that lets users manage multiple computers with just one keyboard, monitor, and mouse. It supports USB and PS/2 interfaces on the console side and USB interface on the PC side. Users can switch between PCs using hotkey, push-button, or on-screen display for flexible management and can hot-plug PCs quickly to avoid downtime.

- Supports high-quality video up to 2,048 x 1,536
- Advanced adjustable auto-scan modes for monitoring multiple computers
- LED display for easy status monitoring
- Password protection with auto timeout logout
- Auto-detect power module bank number when daisy-chaining
- Built-in daisy-chain port for cascading up to 16 levels (128 computers) of up to 30 meters total distance
- Beep alert for port-switching confirmation
- Standard 19-inch 1U rackmount design

Best For: SMEs that need to monitor multiple PCs quickly and efficiently.

Price: \$299.99

Trendnet TK-IP101



The TK-IP101 from Trendnet is a one-port KVM over IP switch that provides cost-effective remote server management for multiple users, regardless of server status. It eliminates the need to physically be in the server room to troubleshoot, reboot, and edit pre-boot functions. The TK-IP101 gives admins highly secure access to both Windows and Java-based clients. The TK-IP101 supports four concurrent logins with up to 16 active user accounts.

- Save time and resources by managing resources remotely
- Centralize management of multiple servers when connected to a conventional KVM switch
- Multiple user access control
- Crisp 1,600 x 1,200 resolution
- Intuitive Web user interface permits upgrades and backups
- Supports user-friendly Telnet sessions and FTP access
- Use with TRENDnet's TK-RP08 to control on/off power cycling of multiple devices remotely
- Works with LDAP, RADIUS, and Active Directory servers
- Supports Ethernet RJ-45 and PPP connection over serial RS-232 interface with data rates up to 1Mbps

Best For: IT staff that want to control BIOS-level functions, Windows-based applications, and other interfaces from a single intuitive Web user interface.

Price: \$499.99

Data Center Physical Security

Total Security Means Protecting Your Data Virtually & Physically

WHEN IT COMES TO SECURITY, enterprises tend to focus their efforts on viruses, information leakage, and similar cybersecurity issues, as opposed to physical security issues that focus on protecting the data center and its servers. However, physical security of a data center is as vital as the virtual security.

Why is it so important? “If the data goes, the company goes,” says Shane MacDougall, principal partner at Tactical Intelligence. “That data is a company’s primary asset. Even though data is ethereal that you can’t see or touch, if somebody can schmooze their way into the facility and then walk out with several of your drives or one of your servers, your company just walked out the door.”

In addition, there are a growing number of lawsuits regarding stolen or lost data. “With the increasing data breaches, if your data is stolen and you get sued, chances are you’re going to lose,” MacDougall says. “Maybe 20 years ago, it was unheard of for someone to steal stuff from data centers. Now you hear about it happening too frequently.”

Hide In Plain Sight

MacDougall has designed several data centers, including one for the largest identity theft protection provider in the world. In his experience, the best first step a data center can take toward physical security is to take measures to blend into the surroundings. That means no outdoor signage announcing the data center’s presence or

anything too conspicuous around the building, such as barbed wire fencing, which makes people curious about what might be inside the building. The building itself should also be non-descript.

It’s also wise to keep street addresses and other identifying information off of Web sites, MacDougall believes.

“A great example of a top-notch data center is Oracle’s Austin data center, [which] has all the bells and whistles,” MacDougall says. “Unfortunately, Oracle, in its desire to push how secure its site is, has leaked pretty much every piece of information about all the protections in place. That in itself reduces the security of the site significantly.”

Implement Security Layers

The physical security of the data center should be in rings or layers, according to Mike Clemson, senior director of facilities at Carpathia Hosting (www.carpathia.com). “The outermost ring is often a fence,”

who passes through. For example, Clemson says, “At Carpathia, you can’t park inside the fence line unless you are an employee or a contractor who has to bring equipment into the building.”

The next layer is actual access into the facility. MacDougall recommends that there should be a minimal number of entrances into the facility. Ideally, he says, there will be only one entrance where all access is verified and monitored, preferably by a guard. “This access point should involve a man trap of some sort,” he says. A man trap is a fairly low-tech but highly effective means of security: two sets of doors very close together that only one person can go through at a time. This prevents a second person without proper credentials from sneaking in when the doors are open.

Although man traps may be low-tech security, data centers are also utilizing some very high-tech security methods, such as smartcards and biometrics or a

Key Points

- A data center’s physical security is as vital as its virtual security.
- The physical security of the data center should be in rings or layers.
- The proprietary cage may be the best piece of security within the data center.

means we don’t have to go through videotape to find a particular bit of footage.”

Protect The Equipment Itself

Although there may be several layers of security before anyone can even get to the server rooms, both Clemson and MacDougall recommend taking extra security measures for the servers themselves.

“Servers can be put in cages,” says MacDougall. “In a lot of data centers, you’ll see shared cabinets and racks, and a lot will have sections where they are

“With the increasing data breaches, if your data is stolen and you get sued, chances are you’re going to lose.”

- Tactical Intelligence's Shane MacDougall


he says. But what and who you let inside the fence needs to be taken into consideration. Some data centers have gated parking lots with a security guard monitoring

combination of the two. Proximity smartcards or biometric scanners can be used not only at entrances onto the property, but also throughout the facility to ensure that only authorized personnel are allowed into specific areas. And because the price of using biometrics has become so reasonable, MacDougall says there is no reason not to use the technology. “Biometrics is the most secure method of authentication that you can put out there for physical security,” he says.

Using CCTV (closed-circuit television) to monitor doors, hallways, and the facility’s grounds has long been a staple in data center security, but as Clemson says, it is the area of security that has seen the most change in recent years. “Old CCTV systems were analog,” Clemson says. “Now they use digital feeds. That enables playback to be handled more cleanly and

caged off, where you need a special key or a proximity card to get in and out of the cage.”

MacDougall especially suggests that individual clients within a hosted data center have their own security systems within the locked cage. “That way, you aren’t just depending on the facility, but you have your own backup security system,” he says.

In fact, the cage may be the best piece of security within the data center. “The reality is, once someone is able to socially engineer their way inside a center, all bets are off,” MacDougall says. Once inside, the person is going to find a way to get access to unprotected servers. However, a server locked in a cage is usually set up so that the data center staff needs to contact the client before accessing the server and get permission. 

Test Your Access Control

Above all, access control is the most critical part of the physical security plan. “The data center manager has to have a solid procedure in place when it comes to visitors or granting access into the facility,” says Mike Clemson, senior director of facilities at Carpathia Hosting (www.carpathia.com). “They have to have a security team that does not make exceptions or allow people to socially engineer their way into the facility.”

Clemson says he has hired someone who is scheduled to break into his site several times a year. He doesn’t have any idea when it is happening, but rather, he gets a report from his security team that a breach has been attempted.

“If you don’t have a tight policy and you don’t test your people,” Clemson says, “you don’t know if you can actually keep your data center safe.”

Broadband Carriers Providing Service That’s Closer To Advertised Speeds

U.S. broadband providers are measurably more accurate in the speeds they’ve been advertising lately, according to a new report from the Federal Communications Commission.

This year’s “Measuring Broadband in America” study focused on 13 of the country’s biggest ISPs serving 86% of U.S. wireline broadband subscribers. It polled users on their actual home download and upload speeds as measured by standard testing mechanisms. The goal was to scientifically ascertain real-world broadband speeds for comparison with carriers’ advertised data rates.

“During the FCC’s development of the National Broadband Plan, we reported evidence from 2009 that actual broadband speeds significantly lagged behind advertised speeds. That’s why, as part of the FCC’s Consumer Empowerment Agenda, we’ve been working to arm consumers with information to help them make smart choices about the broadband service that’s right for them,” said FCC chairman Julius Genachowski in his remarks on the new report.

“First, we found that most major ISPs are providing service close to what they’re advertising. This represents a

significant improvement over the findings from two years ago,” Genachowski said. “While there are some differences between technologies, DSL, cable, and fiber-to-the-home are all delivering quality service generally consistent with what they advertise.”

On average, and during peak hours, fiber-to-the-home services provided 114% of advertised download speeds and 112% of advertised upload speeds, the report says. Cable broadband supplied 93% download and 108% upload advertised speeds, and DSL provided 82% download and 95% upload speeds.

“Another finding was that during peak hours—7 p.m. to 11 p.m.—broadband performance generally decreases somewhat,” Genachowski said. “But most services still provide actual speeds that are 80 to 90% of advertised speeds or better.”

Making Informed Decisions

The FCC also announced a new online guide to walk consumers through the process of choosing a broadband service to fit their needs. The guide also explains important broadband terminology in plain English, according to the chairman. Of course, the guide can also bring new IT

decision-makers up to speed when it’s time to evaluate the broadband needs of branch offices and the like.

“The more consumers know about broadband speeds and the more they know about the speeds they receive, the more able they are to let providers know what they really want,” Genachowski said. “Information for consumers enhances competition among providers of broadband Internet access services and increases the likelihood that consumers will be better served and receive greater value.”



CLOUD TIPS & TRICKS

Are You Ready For The Cloud?

Good Preparation Is Key To A Successful Transition

SHIFTING YOUR APPLICATIONS, storage, or other operations to the cloud doesn't happen overnight—it takes planning and preparation. Here are some tips to help you set up for a smooth transition.



Know Your Business

Understanding your organization's core business and infrastructure is crucial to designing a workable and effective move to the cloud. "I think probably the biggest thing . . . before really starting or kicking off a transition, is to understand [your] business, and really what applications and processes [you] have in place currently," says James Halpin, director of product development at Evolve IP (www.evolveip.net).

He advises data centers to examine their infrastructures for unique applications that may not necessarily be a good fit for cloud technologies, while also identifying those common applications that are likely to work well in a cloud environment. "Those applications and processes, once you understand them, will give you a better perspective on your forward-looking path to start migrating technology to the cloud itself," he says.

Address Security Needs

"Security is one of the biggest concerns with moving to the cloud," says Mike Martin, vice president of cloud solutions

at Logicalis (www.us.logicalis.com). He encourages IT managers to outline needs and expectations for user authentication, compliance with regulatory requirements, and even their cloud providers' data center locations.

"A critical component to a healthy cloud strategy is ensuring that your internal security technologies and practices such as network firewalls and user access controls are strong and mesh well with your cloud provider's own security measures," he says. Carefully defining your organization's data security and compliance requirements will prepare you for a transition that doesn't compromise the integrity of ongoing operations.

Get Buy-In

Don't even consider starting the transition process without gaining high-level buy-in. "Make sure all key stakeholders have bought into a cloud-based product or technology," Halpin says. Getting everyone on the same page is important, whether it's agreeing on which applications will be moved to the cloud or how processes across the organization may need to change to support the transition to cloud architecture. Halpin says that trying to

move forward without ensuring the entire team has a common goal can significantly hamper your efforts, and "when those key stakeholders have not bought into a transition to a cloud-based architecture, the risk of a poor transition is increased exponentially," a situation he says is partially due to "awareness and then ultimately acceptance of a new technology."

Choose The Right SLA

Martin says that data centers should carefully outline their organization's needs and then craft SLAs that specifically address

them. "Ensure your services are delivered around best practices," he says. "High-quality outsourcing partners deliver their services through IT service management tools that connect agreed-upon SLAs to actual service delivery. Processes and communication are the foundation for success."

If you feel your cloud provider isn't offering you the level of support or application performance your company needs to successfully manage operations in the cloud, or if they push you toward a boilerplate SLA that isn't as comprehensive as you'd like, it may be wise to consider a different vendor.

Best Tips

- Mind your ROI.** "One of the main reasons for using cloud in the first place is to reduce costs and get a clear return on your investment," says Mike Martin, vice president of cloud solutions at Logicalis (www.us.logicalis.com). If it won't allow your team to focus on other projects that provide value for your organization, maybe the cloud isn't the right solution.
- Start with low-risk/high-reward applications.** James Halpin, director of product development at Evolve IP (www.evolveip.net), suggests looking for apps such as voice and email "that are kind of burnt into the cloud already." He says it offers a good trial run so you can "figure out what the process is to [successfully] transition applications to a cloud-based provider."

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Key Points

- In a wireless mesh network, signals jump from one wireless node to another.
- Wireless mesh networks extend Wi-Fi coverage into areas that are too difficult or too expensive to wire, most often outdoors.
- When purchasing a wireless mesh solution, look for a solution with multiple radios per node and the ability to run in “bridge mode.”

Take Wi-Fi Where It’s Never Gone Before

Wireless Mesh Networks Make It Easier To Connect To The Web From Anywhere

IN THE UNITED STATES, we’ve grown so accustomed to Wi-Fi access that we take it for granted. We simply assume we’ll be able to connect to the Internet from hotels, restaurants, airports, and most other public indoor spaces.

But traditional Wi-Fi has some limitations. Wi-Fi access points require a wired or fiber connection to the Internet, and the access points can only provide a signal across a limited coverage area. However, wireless mesh networks offer the ability to extend connections to places where it’s hard, expensive, or impossible to run wires.

HOPPING FROM NODE TO NODE

In a traditional Wi-Fi setup, individual routers broadcast a signal over a coverage area. A wireless mesh setup involves multiple routers, called nodes. Signals hop from node to node, allowing connections from a much, much wider area. According to Byron Henderson, vice president of marketing for MeshDynamics (www.meshdynamics.com), “Long chains of nodes may be used to deliver wireless in sparsely settled areas, along borders

and security perimeters, down mine shafts, or across large process plant areas.”

A true mesh network is also self-configuring and self-healing. “Self-configuring” means that when you add another node, it will automatically connect to the existing network. “Self-healing” means that if one node drops out or is temporarily blocked by a physical obstruction, the network will automatically route the data being transmitted through other nearby nodes.

TAKE IT OUTSIDE

Michael Burmeister-Brown, president of Open-Mesh (www.open-mesh.com), notes that the most obvious advantage of wireless mesh is the ability to extend wireless coverage to places that are hard or expensive to wire. That could be a remote rural village in a third-world country, a war zone, a disaster

area, an outdoor venue for a concert or sporting event, or a widespread corporate campus. “These specific benefits are usually needed most outdoors, which is where the bulk of wireless mesh networks have been installed,” Henderson adds.

Why not extend wireless mesh indoors, as well? All that hopping around can sometimes cause performance or bandwidth issues. In addition, Henderson says price plays a role. “Because of the added sophistication of the wireless mesh nodes, they are more expensive than simple Wi-Fi access points,” he explains.

THE THIRD GENERATION


Wireless mesh is not a new technology; however, it hasn’t been a very usable technology until recently. According to Henderson, the early wireless mesh products used a single radio in each node, which caused delays and jitter that made the networks slow and impractical for applications such as video.

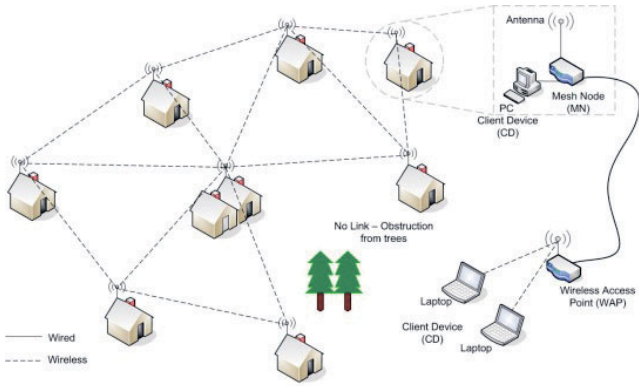
However, the third and latest generation of wireless mesh products “employs multiple radios and distributed intelligence within each mesh node to allow for very large meshes containing many hops (node-to-node links),” Henderson says. “Third-generation wireless mesh networks deployed in the

enterprise environment can often have a very rapid payback. Now that the technology is enterprise-ready, it is receiving more attention as a viable solution.”

WHAT TO LOOK FOR

If your company is considering deploying a wireless mesh solution, Henderson says that you should make sure you get a third-generation solution with three to four radios in each node.

Burmeister-Brown adds that you should look for the ability to run in “bridge mode,” as “without this, you won’t have easy access to printers, security cameras, and other LAN resources.” He also recommends that you shop around because prices for similar wireless mesh solutions can vary significantly. 



In a wireless mesh network, signals hop from one node to the next, removing the need for wires.

SOURCE: THE MERAKA INSTITUTE’S “BUILDING A RURAL WIRELESS MESH NETWORK” GUIDE.

United States No. 1 In Tech Competitiveness Index

The EIU (Economist Intelligence Unit) revealed in its “2011 IT Industry Competitiveness Index” that the United States rates No. 1 worldwide in overall IT competitiveness. Countries were ranked based upon business environment, IT infrastructure, human capital, research and development environment, legal environment, and support for IT industry development. The United States ranked highly in all categories, actually scoring first place in all but IT infrastructure and legal environment. The United States and Finland have taken the No. 1 and No. 2 spots, respectively, for the past two years.

NIST Outlines Federal Cloud Computing Standards

The NIST (National Institute of Standards and Technology) announced a new cloud computing standards roadmap that will help U.S. government agencies to further adopt cloud solutions. The document will outline various standards that should be met when implementing any cloud solution in a government agency. Security, portability, and interoperability were addressed, as well as several use cases such as auditing and compliance. The standards roadmap and reference architecture documents will continue to be updated, as the NIST

noted some security and privacy issues need to be addressed.

Healthcare Organizations Fall Short On Risk Protection

HIPAA guidelines and Meaningful Use requirements insist that healthcare organizations conduct an annual risk assessment to identify and correct any deficiencies in their security measures. However, according to a report released by CSC Global Healthcare

dedicated to security, and half spend 3% or less on security resources. However, analysts believe the focus could shift to security as a government agency will soon be auditing healthcare organizations for compliance.

Company Information Compromised In Misaddressed Email

Two IT researchers working at Godai Group recently proved that intercepting confidential email from Fortune 500 companies can be done fairly easily. The two simply created what they call doppelganger domains that mimicked the actual company domains, but with typos. This simple scam led to 20GB of intercepted email during a six-month period. The two received more than 120,000 emails that contained compromising information regarding company credit card information, invoices, contracts, and usernames and passwords. Although only 30 Fortune 500 companies were exposed in this attempt, the researchers said they found 151 companies that are vulnerable to such an attack. Tech companies, utility companies, pharmaceutical and financial firms, among others, were found vulnerable.

Survey: Social Media A Negative Influence On The Enterprise

Ponemon Institute surveyed 4,640 IT security workers in 12 countries,

including the United States and Canada, to uncover their opinions regarding social networking in the enterprise. According to the survey, 63% of IT workers view social media as a serious risk to the enterprise, but just 29% actually have the proper controls and policies in place to manage the potential risk. A significant downside to social networking in the workplace is the decline in worker productivity—89% of respondents noted a productivity drop due to social media. Also noted in the survey, 77% say bandwidth levels have fallen, and 52% say social media-related malware has increased.

Tech Companies Rank Highly On Attractive Employer Index

Universeum, a company specializing in employer branding, recently released its annual “World’s Most Attractive Employers 2011” index. The index is developed from surveys of current career seekers who list their preferences of employer and the attractiveness of global companies. American companies were the most desired employers across the globe, and IT companies experienced an increase in rankings this year. Google ranked No. 1 in both the Business and Engineering sides of the index. Other tech companies including IBM (No. 2), Microsoft (No. 3), and Intel (No. 5) all placed highly in the Engineering Index. Microsoft nabbed the No. 6 spot in the Business Index.

Engineer Salaries Up In Spite Of Unemployment Numbers

In spite of an unemployment rate that is twice the norm, engineer salaries are on the upswing. The IEEE surveyed 17,000 members to assess their current job situation. Across all engineering specialties, salaries for 2010 averaged \$118,000. That was up from \$113,500 in 2009. Individually, various specialties within the engineering field fared better than others depending on the specialty. Software engineer salaries saw a 4.8% bump in 2010 to \$109,000, while non-Internet software development professionals saw a .35% dip to \$114,600 last year. Meanwhile, unemployment across the board was 4.5% for all engineers in 2010, and 5.4% for computing professionals.

World’s Data Centers See Major Expansion

World data center numbers are going up, and most of the development is in China, Argentina, and Brazil, according to DatacenterDynamics, a London-based company that conducted a census of the industry. They talked to 5,400 industry officials around the world, responsible for 100,000 data centers in total. In spite of financial doom and gloom across the globe, companies that operate data centers dealing with corporate and government data expect to see 19% growth in 2011, the best in years. China expects a 46% increase over the next year alone. Industry officials say the cost of maintaining aging equipment and a desire to build more efficient facilities is driving the expansion.



Fine-Tune Your Server Strategy

Set Up Your Maintenance Plan Now To Avoid Future Trouble

IT WOULD BE NICE if servers lasted forever, but unfortunately, they don't. For that reason, data center managers need to develop a strategy when it comes to upgrading, updating, and maintaining servers, as well as a plan to know when it is time for a replacement.

When developing a server strategy, Clemens Pfeiffer, CTO of Power Assure (www.powerassure.com), suggests the data center run a "what if" scenario on their inventory, comparing existing equipment with new and more efficient equipment.

"When numbers and ROIs are in favor of an upgrade, or when space and/or power constraints exist, data centers should consider an early upgrade," says Pfeiffer.

Policies should include efficiency measurements on equipment during the procurement cycle. Measured idle/loaded power consumption should be used for placements of servers to maximize the capacity in a rack and on each circuit, Pfeiffer adds.

Important Issues To Consider

When it comes to actually upgrading, updating, or replacing a server, the first thing to consider should be the operating needs of the business.

"Far too often, IT management creates a system that benefits the IT department but really does not support the operation," says John Caughell of Argentstratus (www.argentstratus.com). "This potentially leads to higher costs and the data center not responding to changes in the strategic environment."

Also consider the performance of the application, Pfeiffer adds. Determine if the performance is sufficient, how much hardware is needed, and what type of hardware is required to support the application service levels.

The next thing to consider is the role of virtualization. Today's data center can potentially reduce hardware costs through creating several virtual servers on a single physical server, Caughell explains. "Virtualizing the physical server can benefit an enterprise with more than 30 physical servers supporting multiple offices. Where once there were 30 machines scattered through the country, an enterprise could now work with four to five servers in

Key Points

- Run a "what if" scenario on inventory, comparing existing equipment with new and more efficient equipment.
- Policies should include efficiency measurements on equipment during the procurement cycle.
- It is important to look at the total cost of ownership of the server.

a central data center, substantially reducing risk and costs. It is critical though to make sure that sufficient bandwidth exists, at both the data center and remote locations."

Another important issue when considering replacing servers is the role of redundancy. "In the past, manufacturers created redundancy through having multiple devices that automatically kicked in if a component failed," Caughell says. "The main problem with this concept, at least from a data center standpoint is that computers, not components, are the redundancy." Therefore, using the example above, instead of having 30 \$15,000 physical servers, an enterprise might have 10 physical servers at \$10,000 apiece. "Since each server works as part of the whole, stripping out redundant components substantially reduces cost," he says

Money Matters

Overall cost has to be a major consideration in any server strategy plan, but Anthony Howard, a long-time consultant, says it is important to look at the total cost of ownership of the server. According to Howard, there are three pieces of total cost of ownership that make up about 95% of the true cost of the server.

The first component is acquisition cost or the actual cost of the server. "You want to pick a supplier whose logistics are able to get you the lowest price," Howard advises. "But you also want to have a supplier with relationships with key industry players. Don't just buy from someone who has a low price but from someone who can help you in other areas of your business, as well."

The second component is operational costs. That includes areas like energy

consumption, deployment, and management. "You might get a really great deal on the server, but too often you get socked with those operational costs that end up negating the cost of the server," Howard says.

The third component is the maintenance costs. "Maintenance costs include not only concerns like liability, but the upgrade and will that cost me an arm and a leg," says Howard. "You also want something that is reliable [and], that lasts beyond its warranty."

The life span of a server will depend on how it is used, but when it is extended beyond three years, you risk losing capabilities like power and space. "When doing case studies and assessments on data centers, we have seen examples where upgrading two-year-old equipment can lead to 15 times the capacity," says Pfeiffer.

Some of the typical issues seen in setting up a server management plan actually revolve around the strategic and operational needs of the business. Caughell believes that one of the first questions managers should ask is "Are we in the IT business?"

"This is a strategic question that helps define the role of IT and the data center in supporting the enterprise," he says. "Some of the more interesting stories of data center failures and data breaches actually occur because the answer was 'no the enterprise is not in the IT business' but the company went ahead and tried to manage the data center anyhow."

Personnel

If after evaluating these issues the enterprise is still interested in managing its own data center, the next issues revolve around personnel: Who determines what is the right software? Who has access to the server? How is access monitored to make sure that employees are not misusing equipment and data? How is the center staffed? What background checks should be run before allowing people into the data center? Should employees be allowed to work alone in the data center?

On the other hand, Caughell adds, if the enterprise determines it is not in the IT business, then turning to an off-premises service actually answers most of these questions.

Bottom line, Caughell says, the server strategy has to consider the needs of

the company. "New technology and new opportunities make squeezing every last hour of utilization somewhat dangerous as the business can fall behind competitors," he says. Enterprises need to look at each of the issues outlined previously, and then make IT deliver low-cost solutions to the challenges. Caughell adds, "The leadership must always consider that replacing servers more frequently at lower costs than under the old rule of paying more and having it last longer might provide a stronger competitive situation."

Tips For Maintaining Servers

If you are looking to upgrade your company servers, Clemens Pfeiffer, CTO of Power Assure (www.powerassure.com) says there are numerous things data center personnel can do to maintain a server:

1. Increase cold aisle temperature to 80 degrees Fahrenheit.
2. Measure server inlet temperature and adjust cooling accordingly.
3. Balance the data center in terms of heat generation so you can increase the inlet temperature across the board.
4. Use detailed idle/loaded power consumption to place servers and fill racks to the maximum available.
5. Replace servers early when capacity increases and power consumption reduction justify an upgrade with a short ROI.
6. Leverage real-time monitoring of power, temperature, and utilization for the best scalability and reliability.
7. Set up hot/hot data center failover configurations to make sure that no single event can bring down the application.
8. Work with an outside vendor to leverage its database of server reference and efficiency information, set up real-time monitoring and leverage automated failover and reliability procedures to maximize the value of your data center.

U.S. Government Can Help Cloud Industry Grow

The U.S. government can improve the cloud computing industry and help it grow by using more cloud solutions, according to a study by the TechAmerica Foundation. The study says the government is in a position to become a leader in the use of cloud-based offerings and that a 71-member committee, called CLOUD2 (the Commission on the Leadership Opportunity in U.S. Deployment of the Cloud) has already been created to increase widespread adoption of the cloud and help make it less expensive and more effective. TechAmerica says that the information contained in

the study isn't new, but that it's never been presented in quite the same way.

"The issues raised in the report are relatively well-recognized," says Chris Wilson, director and counsel for e-commerce and telecommunications at TechAmerica. "The key themes—Trust, Transnational Data Flows, Transparency, and Transformation—are not new. However, by framing the discussion in that way, the report focuses attention properly on those issues and provides beneficial guidance as to how to overcome the known barriers/obstacles to cloud adoption within each

construct and how to adopt the technology."

The goal of the study is to convince government agencies to support cloud-based services even more than they already do, with the added benefit being that the United States can grow its leadership position as a cloud computing adopter. However, the government hasn't jumped onboard as quickly as some would like because of security concerns and the fact that the government is "risk-averse," according to Wilson. But he thinks those concerns are beginning to dissipate and the government will soon



take advantage of new offerings and find the right ones to fit its needs.

"It is expected that governments will utilize a wide range of cloud computing services and models in the future," Wilson says. "Cloud computing is inherently flexible; thus, different services and models can adapt to different mission needs without the same amount of time and money invested."

The Government's Effect On Cloud Computing

Wilson says that the government has always been at the forefront of technology

and that its investment in cloud computing will not only make the services better, but help the industry earn more revenues and continue to innovate.

"For decades, government agencies have been early adopters of new developments in IT, including the mainframe computer, the minicomputer, the personal computer, and the World Wide Web," Wilson says. "Cloud computing is no different. As one of the largest consumers of IT, if not the largest, the U.S. government, by moving to cloud computing, will demonstrate on a large scale the efficiencies and benefits of such services."

Virtualized Servers: Solving The I/O Bottleneck

What To Do When Your Network Can't Keep Up With Your Servers

TWO SEPARATE but related trends have led to major changes in the data center in recent years. First, the rise of multicore processors has dramatically increased the computing power available in most servers. Second, enterprises are virtualizing their servers, which allows them to take advantage of all that extra computing power by consolidating multiple virtual machines, or VMs, on a single physical server. Virtualization offers numerous benefits, such as improved utilization, cost savings, and the flexibility to move workloads around as necessary. However, it has resulted in one major problem that the industry is still working to solve: I/O bottlenecks.

What Causes I/O Bottlenecks?

Although today's servers have much more CPU power and memory than their predecessors, I/O improvements haven't occurred at the same pace. "I/O was designed, of course, back in the era when you only had one application per server," explains Jon Toor, vice president of marketing for Xsigo (www.xsigo.com). Today, a typical virtualized server often has 10 to 20 VMs, each running different applications. "That single server is now going to require the same bandwidth I/O capacity of the 10 to 20 servers it replaced," Toor says. "That has some interesting implications because the networking capabilities have not increased 10- to 20-fold in that same period of time."

That lack of bandwidth often results in performance problems. "Because you have so many CPUs, so many cores, and they are not getting the I/O bandwidth that they need, then the overall utilization is pretty poor and the efficiency is going down," says Motti Beck, director of marketing for Mellanox Technologies (www.mellanox.com).

Unfortunately, because hypervisors don't track I/O utilization the way they track

CPU and memory utilization, IT managers often don't realize when I/O bottlenecks are to blame for poor performance. "IT managers have no visibility into the I/O subsystem," says Len Rosenthal, vice president of marketing for Virtual Instruments (www.virtualinstruments.com). "They can't see what is going on on a real-time basis."

Possible Solutions

Unfortunately, there are no easy solutions for I/O bottlenecks in virtualized environments; however, enterprises and vendors are working on several possible remedies:

More connections. One obvious solution to bandwidth problems is simply to add more wires. Mike Smith, vice president and general manager of host solutions at Solarflare (www.solarflare.com), explains that when I/O bottlenecks first began cropping up three or four years ago, "what the industry did in response to that was first to move to multiport 1Gb Ethernet. It's pretty common to see servers with six or eight ports of 1Gb Ethernet in them, partly to use for the manageability of the server and the hypervisor, but also to provide extra bandwidth for the application I/O."

Toor notes that although this approach helps, "it actually introduces another issue, which is processor overhead, because when you start link-aggregating multiple connections, that link aggregation itself takes processor bandwidth to manage." In addition, all those cables and ports add management headaches. As a result, multiport 1GbE usually is not a long-term solution to the problem.

Fatter pipes. When multiport 1GbE no longer seems adequate, the next step for many enterprises is to introduce 10GbE. Again, that solves the problem for a while, but as enterprises add more and more VMs to their servers, the 10GbE pipes are becoming full, Smith notes.

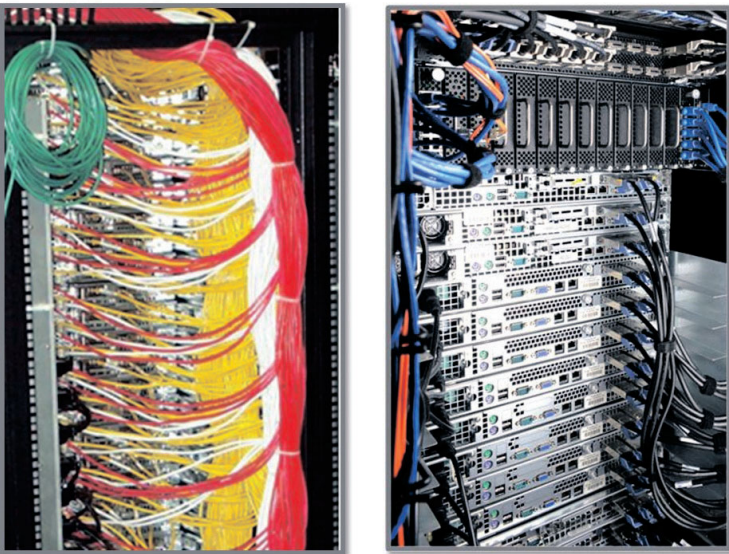
Others move to even fatter pipes—40GbE or InfiniBand fabric. However, although these solutions cost less than 10GbE on a per-gigabit basis, the higher total costs put them out of reach for many smaller data centers.

I/O virtualization. For those companies that have upgraded from 1GbE to higher-bandwidth connections, I/O virtualization technology can help them improve the efficiency of those connections. Just as virtualizing servers allows you to combine multiple

VMs onto one physical machine, virtualizing I/O allows you to share high-bandwidth cables among a variety of networks. "What you can do is run one very high-speed cable into the server and then dynamically share that one resource," Toor says.

Toor adds that I/O virtualization can reduce the number of cables on a server rack from 450 to just 75. The cost savings for the company are about 50%, he says. And performance improves, as well. "In backup jobs, we see an improvement of anywhere from three to five times in the time it takes to complete a backup job," Toor says. "In terms of vMotion events, we see a 4x improvement in the speed."

Smith says his company sees similar improvements with I/O



I/O virtualization helps to eliminate I/O bottlenecks while dramatically reducing the amount of cabling necessary for a rack of virtualized servers, as shown in the left server vs. the right.

SOURCE: XSIGO SYSTEMS

Key Points

- Although many modern servers have the CPU and memory capacity to handle multiple VMs, standard 1GbE connections don't provide enough bandwidth to do so.
- As a first step to dealing with I/O bottlenecks, many enterprises upgrade to multiport 1GbE or 10GbE, but these changes may not be enough to keep up with the rapid improvements in compute power.
- Long-term strategies for dealing with I/O bottlenecks may include I/O virtualization, better caching, and I/O management software.


virtualization. "We're seeing in our tests, for example, performance increases from a couple of gigabits per second to 8.5 to 9 gigabits per second, almost line rate in a virtualized server using single root I/O virtualization."

Smith explains, "Essentially what [I/O virtualization] does is it opens up new bandwidth, or it makes the use of that bandwidth five to six times more efficient than it would be without it. No new hardware, no new cabling, [and the] same 10-gig pipe you would otherwise be using, and you're making it many times more efficient."

Better caching. Another approach to the I/O bottleneck is to reduce the amount of communication between servers and storage, thus reducing the overall amount of I/O. "The simplest solution is to keep the I/Os from ever having to go out to primary storage," says Bruce Clarke, vice president of technical marketing and support for IO Turbine (www.ioturbine.com).

One way to do that is to add flash memory to the server to act as cache, along with software to manage that cache. "By doing that, then, those I/O requests never leave the server," Clarke explains. "Obviously, flash being as fast as it is, not only did they not leave the server, but they got satisfied in a fraction of the time that it would have taken them to be satisfied if they had gone to the server."

I/O management software. New I/O management tools are also helping data centers identify and prevent I/O bottlenecks. For example, Rosenthal says that some software can fill in the I/O data that hypervisors don't provide. "Once you have that real-time view of I/O traffic, then you can really see those things instantaneously to avoid the problems, not just fix the problems," he says.

Many of these management tools can be used alongside techniques such as I/O virtualization in order to provide a better long-term solution to the I/O bottleneck problem. 

News

Intel Acquires Telmap

In a move to expand its mobile services software capabilities, Intel has agreed to acquire Israeli mobile navigation company Telmap for an undisclosed amount. Telmap provides hosted and managed location-based services to mobile providers around the world, including Vodafone, Vodacom, and Orange FT Group. Telmap's software, which spans operating systems, devices, and CPU architectures, will give Intel AppUp developers location-based abilities that they can embed directly in their apps. After the acquisition, Telmap will become a subsidiary of Intel and retain its management and 210 employees. The deal is expected to close before the end of the year.



Nokia Lays Off 3,500

Nokia announced that it will eliminate 3,500 jobs by closing its factory in Cluj, Romania, and making changes in its location and commerce business. The company is consolidating its location assets, including NAVTEQ and its social locations services operations. The factory in Romania will close by the end of the year, and Nokia will transfer production to its factories in Asia. The move is part of Nokia's efforts to streamline production and make the transition to supporting Microsoft's Windows Phone 7 architecture. Nokia announced in April that it would outsource its Symbian operating system to Accenture and cut 4,000 jobs.

DOJ Requests More Info On Google/Motorola Deal

The U.S. Department of Justice has asked Google for more details on its proposed acquisition of Motorola Mobility. The request could delay the \$12.5 billion acquisition, Google said. The acquisition would give Google access to Motorola Mobility's large portfolio of 17,000 patents, and it would also give Google control over the development of some Android-based devices. Google says that it is confident the Justice Department will approve the deal because there will still be many mobile phone providers competing in the market. If the Justice Department rejects the deal, Google would be forced to pay Motorola Mobility \$2.5 billion.



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SIX QUICK TIPS

Get Superior SharePoint Performance

Squeeze More Performance From Your SharePoint Platform

THROUGH ITS DEEP COLLABORATION and document management technologies, Microsoft SharePoint can easily boost company efficiency and productivity. By improving the performance of this Web application platform, businesses can extend the usefulness of its many features and target potential problem areas that can occur after deployment. Here's a look at several tips designed to inject better performance and boost SharePoint's overall value.

✓ **Create A Response Plan**

When SharePoint performance goes south, IT managers typically scramble to find solutions before complaints begin to hail down from users. Rich Blank, solution engineer with NewsGator Technologies (www.newsgator.com), recommends creating an incident response plan that can help mitigate problems and ensure that SharePoint performance is where it needs to be for all users.

First, he says, view performance from the eyes of the global user and determine what performance is acceptable to the user in different parts of the world. Next, look at the whole system—for example, followers of the OSI model will look at the physical, data link, network, transport, sessions, presentation, and application layers. Regardless of your definition of the whole system, make sure you understand what the dependencies are and where they reside.

“Know what scenarios could go wrong and affect performance so you can apply some logical deductive reasoning should a problem occur,” Blank says. “This way you can more easily identify the bottlenecks and root cause and take the right actions to mitigate or improve the experience for the end user. Find ways to effectively monitor the different layers and proactively get alerted to potential issues.”

For example, you can configure SharePoint monitoring via central administration and use the Health Analyzer to identify issues with performance, configuration, availability, and security, he says. Finally, Blank advises educating your front-line support staff on how to troubleshoot perceived issues relating to SharePoint to remove some of the burden from backline system engineers.

✓ **Extend To Email Archiving**

According to Dave Hunt, founder and CEO of C2C Systems (www.c2c.com), SharePoint experiences rapid data growth as high volumes of data get stored in the SharePoint server. In turn, this can have a dramatic impact on both end-user performance and backup process performance, but extending your email archiving strategy to also archive SharePoint data can help to improve that performance.

“Because SharePoint archiving can solve capacity problems created by the volume of data items and size of data

being submitted by users, it can alleviate the common storage burden of SharePoint while maintaining system performance and improving end-user productivity,” Hunt says.

He recommends placing data with a “stub” or pointer to the real data, which will significantly reduce the overall amount of live data existing on primary storage by offloading it to a secondary storage device. Hunt also recommends eliminating duplicate documents stored within SharePoint to improve performance. Although this can be done manually, deduplication tools can automate the process and save plenty of time.

✓ **Tune For Performance**

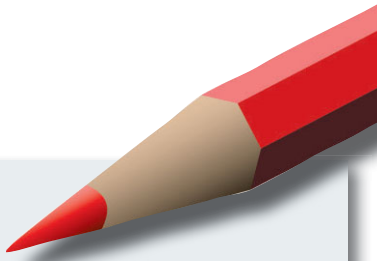
According to Rob Shaughnessy, CTO of Circadence (www.circadence.com), the implementation of a SharePoint environment offers several opportunities to tune for performance. Efficient SharePoint environments rely on solid hardware platforms that provide enough processing power and memory to satisfy this demanding application, so it's crucial to ensure that both of these elements are enough to meet those demands.

“Secondly, it is important to configure and tune the constituent environments, such as IIS, for best performance, including enabling IIS compression capabilities and tuning processes,” he says. “[Also], it is important to configure the environment and applications properly for the content being served, as well as the user base. How end users will interact with the SharePoint portal and the applications which will be utilized should drive the specific tuning accomplished. Microsoft maintains some excellent best practices guides for configuring SharePoint to suit various environments.”

✓ **Develop A Holistic Mindset**

As with other important elements of an IT environment, critical business applications can be more effective when they're treated in a holistic manner. C2C's Hunt recommends that IT managers keep in mind the value and use of SharePoint within their organizations, because if the application is quickly becoming a vital information library and collaboration environment, they'll want to have adequate retention management policies in place to satisfy regulatory obligations.

“It comes down to how you manage, govern, and simplify the complexity of all the parts that make up the whole,” adds NewsGator's Blank. “If, for example, you don't have a governance plan that addresses performance, then you need to create one. Good performance must take into consideration operational, project management, infrastructure, and executive-level best practices. This means you have to coordinate among different resources, manage different parts of the system, and drive to a more coordinated effort.”



Smartest Tip:

✓ *Consider All The Parts*

Rich Blank, solution engineer with NewsGator Technologies (www.newsgator.com), explains that SharePoint is a complex system with multiple dependencies, including virtual machines, hardware, OSes, applications, customizations, SharePoint services, databases, networks, and integration with systems. When a performance-related issue occurs, you may need to target one or more areas to solve the problem.

“The key is determining what caused the problem to begin with,” Blank says. “You can obviously scale up or scale out and add redundancy. Bandwidth is always a concern, especially as organizations share large files or stream rich media from SharePoint across their organizational networks. Where possible, cache and compress, purchase WAN accelerators, or allocate more bandwidth. Growth of sites and content is also a consideration with respect to performance.”

Biggest Timesaver

✓ *Communicate With Users*

Attempting to solve an unknown SharePoint problem can be like blindly throwing darts at a dartboard. However, it can be more helpful in certain situations to go directly to your users to get a better handle on the issue. Stephen Cawood, director of product marketing for Metalogix (www.metalogix.com), says it can be a challenge wading through all the literature and possibilities to nail down the few that will best impact your SharePoint environment.

“My first suggestion is to speak directly to your users and identify the most common scenarios and which of those use cases present the most impact performance implications,” he says. “Once you've narrowed down exactly what is happening in these scenarios—e.g., exactly which features are being used—you can begin to investigate how to improve the performance of those particular pieces of your environment.”

BONUS TIPS:

✓ *Add SharePoint Workspace.*

If you have users complaining about the performance of the SharePoint interface for document management, Stephen Cawood, director of product marketing for Metalogix (www.metalogix.com), recommends adding SharePoint Workspace for a quick fix. “Instead of using the Web interface, Workspace allows users to work with documents locally and synchronize their changes to the server,” he says. “Generally, Workspace is presented as a tool for mobile users, but that doesn't mean your local users won't benefit, as well.”

✓ *Establish a governance plan.*

Implementing tools and technologies that focus on caching and compression of data can have a big impact on SharePoint performance. According to Rich Blank, solution engineer with NewsGator Technologies (www.newsgator.com), anything like this that touches the infrastructure can be time-consuming and costly, even if it's well worth the effort. However, these steps can also involve procurement and at least some level of company politics, so he advises establishing a comprehensive governance plan from the outset to provide solid data that justifies the need for investments in infrastructure enhancements.

BUYING GUIDE



BUYING TIPS:

Unified Threat Management

UNIFIED THREAT MANAGEMENT incorporates a raft of network security technologies previously sold separately, such as intrusion prevention, spam filtering, and VPN. Not only does well-coded UTM keep disparate components from conflicting with each other, it gives them access to each other’s expertise for better protection.

Here’s a look at major features to keep in mind if your enterprise is planning to upgrade its UTM appliance.

Perimeter defense. If you think of a UTM as a castle, its firewall component is its moat. Pierluigi Stella, CTO of Network Box USA (www.networkboxusa.com), recommends that a UTM appliance have at least SPI (stateful packet inspection) capability. Better yet, he says, is a hybrid firewall with SPI, proxy, and packet filtering features.

Additionally, the UTM must come with intrusion detection and prevention systems. The IDS/IPS should be inline with the firewall and fully integrated with it to better stop threats at the edge.

Anti-everything. “Hackers use all kinds of ways to get in,” Stella says. “You need to have protection against all of them.” This means active safeguards against spam, phishing, Trojans, worms, and so on.

First, Stella says, a good UTM employs multiple antivirus engines with robust, real-time protection against zero-day attacks. The antivirus should cover multiple protocols. An additional ability to scan encrypted protocols, uncommon today, will become more important this year, he adds.

Also, Stella says, look for products from vendors that don’t “dumb down” their low-end models intended for branch and remote offices. Although entry-level UTM’s may provide proportionally more modest throughput and concurrent connection figures, he says, “it is very important that the technology offered for the small offices be exactly the same as that offered for the main office.”

User-related protection. A UTM must provide policy enforcement, detection of attachments with potentially dangerous payloads, and server protection that leverages the firewall and IDS/IPS.

A Web access policy is also key, Stella says, as is secure VPN access with both IPsec and SSL support for site-to-site and roaming scenarios.

Continuous vendor support. After dedicating a skilled, onsite technician or two to professionally configure your new managed UTM to protect your network, the vendor

BUYERS’ CHECKLIST

- ✓ **Effectiveness.** How well does the appliance block malware and network threats, known and unknown?
- ✓ **Performance.** Is the system fast enough to have minimal impact on network throughput?
- ✓ **Price.** Beyond the purchase price and cost of initial, professional configuration, what’s the ongoing subscription cost of remote management?
- ✓ **Reliability.** If the UTM comes in an appliance, does it have high availability features?

KEY TERMS

Appliance. A standalone server for running a particular application, such as UTM.

Managed. An appliance that a vendor remotely monitors, updates, and changes.

UTM (unified threat management). Software (often installed on a managed appliance) that seeks to comprehensively block malware and network threats through features such as a firewall, antivirus, anti-spam, intrusion prevention, VPN, access policy enforcement, and more.

must also monitor and manage the appliance all day, every day. This includes proactive updating instead of waiting for the devices to “check in” every so often.

“The Internet moves too fast for updates to be pulled from the devices. Push updates are now a must . . . to reduce exposure to zero-day threats.”

True integration. A UTM should be a team effort, Stella says. All of its formerly disparate features must be integrated with each other. As examples, Stella says that just as the firewall and IPS should work closely together, the antispam should work with the IPS to temporarily blacklist source IP

addresses and avoid spam floods. In a like manner, the Web access policy should consult with the antispam component to block emails containing URLs that are either harmful or just simply against company policy.

“In a true UTM device, all the functions work together as a whole, such that the final result is stronger than the sum of the parts.”

Future tech. UTM’s will likely add more new technologies that have traditionally been sold separately, Stella says, citing data loss prevention and vulnerability scanning as two examples. “More and more companies are demanding to see them integrated with the gateway protection,” he says. ■

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PRODUCT SPOTLIGHT

Unified Threat Management

Product	Check Point UTM-1	Check Point UTM-1 Edge N	Crossbeam Systems X-Series
Description	<p>The Check Point UTM-1 family of turnkey, comprehensive security appliances has several models covering the security needs of organizations ranging from about 75 users in size to up to 1,500 employees. There's zero-hour outbreak protection on board in addition to DoS and buffer overflow attack mitigation; instant messaging and P2P firewalling; and antispam via reputation, white/blacklists, and content analysis.</p> <ul style="list-style-type: none">• Firewall throughput ranges from 1.5Gbps in the UTM-1 136 to 4.5Gbps in the UTM-1 3076• Features IPS, firewall, antivirus, antispware, URL filtering, Web security, and antispam functionality• VPN throughput of up to 1.1Gbps in the UTM-1 3076• Modular Software Blade architecture allows future addition of features such as SSL or IPsec VPN, VoIP, and more• Support for up to 1.1 million concurrent sessions in the UTM-1 1076, 2076, and 3076• IPS throughput of up to 4Gbps in the UTM-1 3076 80 to 160GB of onboard storage capacity <p>Best For: Medium-sized to large enterprises.</p>	<p>The Edge N series has a very different focus than other members of Check Point's UTM-1 lineup. It's directed at SMBs and branch offices with pricing to match. Four models, including two ADSL editions, share the same performance specifications but differ in options such as Wi-Fi 802.11n, 3G modem support, Gigabit Ethernet, SFP and USB support, a print server, and more.</p> <ul style="list-style-type: none">• 1Gbps firewall throughput• 200Mbps VPN throughput• 60,000 concurrent firewall connections <p>Best For: Branch offices and small to medium-sized businesses.</p>	<p>The X-Series Network Security Platform family from Crossbeam brings together a quartet of security appliances for a range of needs. The X20, X30, X60, and X80-S are based upon a blade-style, modular architecture—what Crossbeam calls an open, adaptable platform—for expandability. Each encloses at least one APM (application processor module), an NPM (network processor module), and a CPM (control processor module), along with Crossbeam's latest XOS operating system.</p> <ul style="list-style-type: none">• Models support throughput of 5Gbps in the X20 to 150Gbps in the X80-S• APM blades are available with up to 12 cores• The updated XOS operating system version 9.5 supports more security applications <p>Best For: Service providers, telcos, and large enterprises.</p>

Product	SonicWALL NSA 2400	SonicWALL NSA 4500	Trustwave Unified Threat Management
Description	<p>SonicWALL says that its NSA 2400 gives small to mid-sized businesses comprehensive internal and external protection with easy, flexible setup. It boasts six Gigabit Ethernet ports plus dual USB connections for potential 3G wireless modem configuration access. The NSA 2400 is a next-generation firewall platform, the company says, bringing dual-core performance to the table along with advanced protection technologies.</p> <ul style="list-style-type: none">• Application Intelligence and Control addresses leakage of sensitive data• Granular control over basic policies and rules• Reassembly-Free Deep Packet Inspection uncovers hidden threats• Gateway antivirus, antispware, and intrusion prevention <p>Best For: Branch offices and small to medium-sized businesses.</p>	<p>SonicWALL bills its NSA 4500 as a next-generation firewall platform for central-site and large distributed environments needing high capacity and performance. The NSA 4500 includes dual-core processing, IPS, SSL VPN, high-availability technology, advanced networking, and proprietary features in an effort to provide real-time protection without sacrificing speed. SonicWALL says that the NSA 4500 supports a large but flexible deployment with 1,500 site-to-site VPN tunnels, 500 global VPN clients (3,000 maximum), two SSL VPN NetExtender clients (30 maximum), and two Virtual Assist Technicians (10 maximum).</p> <ul style="list-style-type: none">• Reassembly-Free Deep Packet Inspection firewall• SonicWALL Clean VPN secures tunnel access and traffic• Application Intelligence and Control prevents data leakage <p>Best For: Midsized businesses; central-site and large distributed environments.</p>	<p>Trustwave says that its Unified Threat Management delivers a combination of critical security technologies in a single, cost-effective package. With two tiered models to fit a variety of perimeter security needs, Trustwave UTM is available as an appliance or as a fully managed service. Fully configured with antivirus, VPN, intrusion prevention, and a firewall, the appliances can furnish a total throughput of between 4Mbps (TS-10) and 124Mbps (TS-100).</p> <ul style="list-style-type: none">• Stateful firewall• Inline IPS• Web and email gateway antivirus• Web content filtering• Site-to-site and remote user VPN• Remote application access control <p>Best For: Small, medium-sized, and distributed enterprises.</p>

PRODUCT SPOTLIGHT

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Fortinet FortiGate-3040B



High-bandwidth networks require high-bandwidth security. The FortiGate-3040B from Fortinet is up to the challenge. Sporting the highest 10Gb port density in its class, according to Fortinet, the FortiGate-3040B provides subscription-based, real-time security coverage. And with its purpose-built FortiASIC processors, it doesn't bog down the network.

- Hardware-accelerated 10Gbps Ethernet SFP+ and 1Gbps SFP ports
- 40Gbps firewall and 16Gbps IPsec VPN throughput
- Can support up to 4 million concurrent sessions and 100,000 new sessions per second
- 1.2Gbps antivirus and 5Gbps IPS throughput
- Redundant, hot-swappable power supplies

Best For: Large enterprises.

Juniper SRX Series Services Gateways For The Branch



Juniper says its SRX Series Services Gateways For The Branch UTMs are the only solutions that consolidate switching, routing, and security services in a single device to connect, secure, and manage any network. With five models for branch offices (and another five for the data center), the SRX series aims to deliver proven security services combined with superior availability and performance, while reducing total cost of ownership.

- Firewall, VPN, IPS, antivirus, antispam, Web filtering, and content filtering
- Wizards for quick and easy deployment
- AppSecure application-level monitoring and firewall
- Integrated and centralized reporting, configuration, policy management
- Integrated WAN/routing/QoS with Ethernet, 3G, LTE, T1/E1, xDSL, serial, and DOCSIS-3 options

Best For: Branch offices and small to medium-sized businesses.

Network Box M-255, M-285 & M-385



Network Box offers a range of UTM devices, with three aimed at medium-sized enterprises. New from Network Box is the M-385, which makes use of a 3GHz dual-core Intel Core 2 Duo processor to power its impressive security technologies. The M-285 (pictured) features a 2GHz Intel Pentium M processor. There's stateful packet inspection and packet filtering in the firewall, IDS and IDP, anti-malware, antispam/phishing, content filtering, IPsec and SSL VPN, and more.

- Supports up to 150 users
- The M-385 has seven Gigabit Ethernet ports (expandable to 11 and with fiber support); the M-285 has four Gigabit Ethernet ports and a 100Mbps port

Best For: Medium-sized enterprises.

Contact: (832) 242-5757 | www.networkboxusa.com

WatchGuard XTM 5 Series



A suite of management tools and enough speed to handle high-speed LAN backbone infrastructures and 1Gbps WAN connections mark the WatchGuard XTM 5 series of UTMs for midrange enterprises and SMBs. IT management access is provided by a centralized console, a CLI with script support, and a browser interface. The scalable XTM 5 series also comes with enhanced reporting skills and real-time monitoring provisions.

- Throughput up to 2.3Gbps firewall, 800Mbps XTM, and 750Mbps VPN in the XTM 530
- Up to 350,000 concurrent connections in the XTM 530
- 2,500 local user database
- Up to 600 branch office and 1,000 mobile VPN tunnels in the XTM 530
- Seven interface ports (six GbE and one FE)

Best For: Small to medium-sized businesses.

WatchGuard XTM 8 Series



The WatchGuard XTM 8 family of three UTM devices addresses the myriad security needs of main offices, headquarters, and other major facilities. The XTM 8 products supply full HTTPS inspection, IPS, antispam, and antivirus, plus optional features such as URL filtering, app control, reputation-enabled defense, and more. Administrators have access to the XTM 8 via scriptable command line, Web console, and WatchGuard System Manager. The system also provides rich reporting, real-time monitoring, clustering, and high availability (active/active and active/passive) features.

- Throughput up to 5Gbps firewall, 1.6Gbps XTM, and 1.7Gbps VPN in the XTM 830
- Up to 1 million concurrent connections in the XTM 830
- Up to 6,000 branch office VPN tunnels in the XTM 830
- 10 1Gbps Ethernet interface ports (four fiber ports optional)

Best For: Main offices/headquarters, medium-sized to large enterprises, and data centers.

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Marketing IT

How To “Sell” Your IT Department To Your Enterprise’s Leaders

IN TODAY’S COMPETITIVE business landscape, IT is often crucial to the success of an enterprise by driving innovation and growth. Yet at many companies, there’s a disconnect between IT and other departments, which can lead to communication tangles and lack of executive buy-in for major IT projects. Here are some tips for making sure that IT can “sell” itself properly to enterprise leaders.

Match Up With Business Objectives

According to Kris Domich, principal consultant at Dimension Data (www.dimensiondata.com), the best way to “sell” IT to company leaders is to consistently match the deployment of technology to meet specific business objectives. Instead of being viewed as a “necessary evil,” IT’s image should be one of a strategic enabler of the business, Domich says.

“In addition to the daily care and feeding of the data center and its users, IT must consistently research new technologies that increase the ability to meet business objectives,” he says. “It’s important to remember that business leaders don’t necessarily know what the current state-of-the-art technologies are, but that technology companies regularly market specifically to business leaders.”

Because of that situation, it’s vital for IT to stay on top of technological developments so that their value can be explained to business leaders. IT managers should possess the ability to articulate the advantages of technology in a way that aligns with formal business-case language and

cost benefit analyses. Domich says, “Talk in terms of business value derived from the technology as opposed to speeds, feeds, and other aspects that won’t make the same impression on the audience.”

When choosing new technology or embarking on a potential project, look at the benefits beyond IT implementation, and start thinking in terms of larger business advantages. Domich suggests that IT develop a formal business case for each new technology to make it understandable in terms of the needs of business leaders.

For example, when describing a new application geared toward sales lead generation, it’s more important to talk about increasing the efficiency of the sales team than describe programming nuances that make the software run better with existing applications. Understanding what’s needed at the business creates stronger partnerships and “sells” leaders on the value of IT.

Become A True Business Partner

In order to sync up with company goals, IT has to be able to empathize with business leaders in order to adequately support them

as true business partners, says Domich. Business leaders aren’t usually concerned about system performance or availability, because their focus is on meeting business objectives and examining financial metrics.

IT has to integrate with the business at the leadership level and understand the goals and constraints of the business so it can make decisions and recommendations that are congruent with those goals, Domich advises.

“In many cases, a paradigm shift must take place,” he says. “In contrast to the typical reactive role that IT plays when provisioning new technology, IT should be looking for new technologies that will improve its ability to meet business and financial objectives and bring this awareness to business leaders proactively.”

Such a partnership will go both ways; business leaders from other departments should also be “trained” through frequent interaction to think of IT as a place of problem-solving. For instance, if the company wants to trim costs in a certain department, approaching IT for more efficient strategies should be part of that decision-making process. Marketing IT as a resource for those

Key Points

- One of the best ways to “sell” IT to company leaders is to look toward meeting specific business objectives when deploying any technology.
- IT departments must try to relate to the enterprise’s leaders and understand what they need in terms of financial information or business goals.
- Developing steering committees can keep IT on track with producing business-case analyses of technology decisions, and communicating through relationship managers can give business leaders a liaison to IT departments.

focused on developing knowledge and practices for information systems.

CCBs have the ability to enforce a technology business case that includes alignment, value delivery, and risk management, Roth notes. With more efficient planning and implementation of IT

“Talk in terms of business value derived from the technology as opposed to speeds, feeds, and other aspects that won’t make the same impression on the audience.”

- Dimension Data’s Kris Domich

Top Tip: Show That You’re Customer-Focused

Developing and enforcing service levels that meet customer requirements—while still meeting financial objectives—shows those on the executive level that IT understands the importance of application and data availability, notes Kris Domich, principal consultant at Dimension Data (www.dimensiondata.com).

“IT should also measure its performance against those service levels and be transparent about the user community about how well it is or isn’t meeting those service levels,” he says. “Identifying areas for improvement and making the necessary changes to meet customer requirements will be an ongoing exercise.”


In some cases, changes will be user-driven, while others might be internal goals set by the IT department to increase performance, reliability, and efficiency. Domich adds that whatever the driver is, it’s important to share progress toward those goals and clearly articulate how meeting those goals translates to a direct benefit to the business.

types of situations will help create firmer partnerships within the enterprise.


Create Steering Committees & Relationship Managers

Getting input from business leaders can be achieved through regular communication, but for a higher level of buy-in, IT can put together a senior-level, integrated technology steering committee or CCB (configuration change board), according to Jeff Roth, director of Technology Risk Advisory Services at RSM McGladrey (www.mcgladrey.com) and member of the IT GRC (governance, risk management, and compliance) task force for ISACA (Information Systems Audit and Control Association), a nonprofit association

process standardization, it’s easier to get more executive buy-in, especially if there are numerous cost benefits involved.

In general, developing more opportunities for communication can go a long way to bridge the gap that sometimes occurs between IT and other departments. Domich recommends that IT managers can hold meetings with stakeholders to discuss new IT proposals and can also use dedicated relationship managers who work to deepen their understanding of the enterprise’s technology requirements. Assigning one or two people to the task can give business leaders a liaison to IT, so they know who to approach when they have questions or want to make suggestions. 

News



Cloud Solutions Improve Customer Satisfaction

A recent study by AMI-Partners found that 70% of U.S. SMBs and mid-market cloud channel partners significantly expand their customer seat counts in the first six months after they make a cloud deployment. AMI-Partners says that many SMBs will start with a small, focused cloud application

and, once they get comfortable with the solution, expand it to a larger portion of the company. Almost one-quarter of the SMBs expand the cloud solution to the entire company, the study found. AMI-Partners also found that two-thirds of cloud solution providers saw increased customer satisfaction since they started to offer cloud solutions.

IBM Buys Q1 Labs

IBM announced that it will acquire Massachusetts-based Q1 Labs, which sells security intelligence and event monitoring software. Q1’s software collects, stores, and analyzes log, threat, and vulner-

ability data and then flags network activity that could possibly be malicious. IBM will use Q1’s software in its new Security Systems division, which will be led by Brendan Hannigan, now Q1’s CEO. Q1 has 1,800 clients around the world in healthcare, finance, energy, government, and retail. The companies did not disclose terms of the deal, which is expected to close by the end of the year. IBM acquired another security analysis company, i2, in August.

Red Hat Buys Gluster

Red Hat announced that it is acquiring storage software developer

Gluster for \$136 million in cash. Gluster’s software storage system gives enterprises the ability to combine different storage and compute resources into a centrally managed pool and also lets enterprises move storage to a mixture of public or private clouds. Red Hat says that over the next few months it will incorporate Gluster’s products into its own product lines and also offer them through a subscription model. Gluster’s main product, GlusterFS, is an open-source distributed file system that can scale to several petabytes of data. The deal is expected to close in October.

HOW TO

Set Up An Exchange Server

Make Sure This Important Collaboration & Communication Tool Has The Resources It Needs

MICROSOFT EXCHANGE SERVER IS a collaborative infrastructure software product designed to handle enterprise-wide email, calendaring, contacts, and tasks. As such, it often becomes the cornerstone of an organization’s communication platform. Exchange Server software runs exclusively on Microsoft platforms and interfaces with clients via Microsoft Outlook. Regardless of the size of the organization, there are a lot of benefits to setting up an Exchange Server, either on an existing server or as a standalone appliance. What follows is a basic overview of what to consider when setting up a Microsoft Exchange Server.

Minimum Requirements

Believe it or not, an Exchange Server appliance has some rather high minimum requirements. For the appliance OS, you’ll need Windows Server 2008 x64 Standard or Enterprise Edition with Service Pack 2 or Windows Server 2008 R2 Standard or Enterprise Edition. If you only want to install Exchange Server’s management tools, you can get by with a 64-bit edition of Windows Vista or Windows 7.

On the hardware side, the platform must utilize a 64-bit-capable processor, such as any Intel Extended Memory 64 Technology-capable processor or AMD64-based AMD processor. According to Karl Forster, president of Lockstep Systems (www.lockstep.com), “People tend to focus on the number of cores in the CPU, which is not as important to Exchange as free memory and disk space.”

Although Microsoft reports that Exchange Server requires at least 4GB of RAM as a baseline and 5MB of RAM for each mailbox, Forster revises this somewhat, saying, “For a standalone Exchange Server, I recommend 4GB to 8GB of RAM at the very least, and double these numbers is optimal. For Exchange on Small Business Server you need to start at 8GB to 12GB and target optimal towards 16GB of RAM.”

The Exchange Server software will occupy about 1.2GB of NTFS-formatted storage on the appliance, but IT personnel should also add 500MB of disk space for each Unified Messaging language pack that will be installed. “Exchange users will never stop amazing IT departments as to how fast they can consume space within their Exchange Mailbox stores,” Forster says. “Since Exchange users consume gigabytes of storage, you need to pre-allocate a large drive to Exchange. Microsoft recommends that you use two physically separate drives to hold the Exchange data: one drive for the mailbox stores and a separate drive for the log files. This is great for large installations, but a single drive will work for an average installation.”

Forster also cautions IT to make sure there is plenty of free space on the C: drive for the swap file (typically the same capacity as the installed RAM) “If the C: drive runs low on disk space, the swap file will be reduced in size, and Exchange will stop processing email,” Forster says. He recommends keeping hundreds of gigabytes free on the drives you specify for the mailbox stores and the logs. A 1TB drive should do the trick.

The system will also need access to a DVD-ROM drive, either local or network-accessible. To perform


management tasks, users need a monitor that supports at least an 800 x 600 resolution.

In order to lay the groundwork for Exchange Server, IT personnel will need to install Microsoft .NET Framework 3.5 SP1 and Windows PowerShell v2.0. If these aren’t present during installation, Exchange Server’s setup will prompt users to add them to the system.

Costs, Upfront & Otherwise

As of press time, Exchange Server 2010 Standard and Enterprise Editions were available for \$699 and \$3,999, respectively. The

Exchange Server 2010 Standard CAL (Client Access License) starts at \$67 per year.

Forster also points out some of the hidden costs, saying, “It is common to find the greatest cost in setting up Exchange is the cost of the hardware and the cost of the operating system plus Exchange.” Although setting up Exchange in a virtual computer may appear to save costs in the short run, Exchange could tie up resources for the rest of the virtual computers. Forster also emphasizes employee time as a big hidden cost in setting up an Exchange Server. 

Key Points

- Microsoft Exchange Servers require a certain degree of hardware and software capacity to achieve best performance.
- In addition to the cost of software and hardware, be sure to factor in the man-hours required for installation and the possible spike in resource usage.
- Third-party programs such as email downloaders and backup programs can help your Exchange Server run even more smoothly.

Action Plan

To set up an Exchange Server, follow these simple steps on your server appliance.

- Load the Exchange Server DVD on a computer that meets the minimum specs for your Exchange Server deployment and initiate the setup process.
- Install any of the prerequisites you missed when prompted by the installation, such as .NET Framework 2.0, Microsoft Management Console, Microsoft Command Shell, Microsoft Exchange, or other critical updates.
- Proceed with the installation once the prerequisites are installed.
- When prompted, make sure to enable Error Reporting, which can simplify troubleshooting problems down the road.
- Choose a Custom installation to take greater control over the Exchange Server installation process.
- Select the server roles you wish to install.
- Input the organization name if one does not already exist, or join an existing organization if one does.
- Specify if any networked clients have Outlook 2003 installed on them.
- When the prerequisites are met, proceed by clicking the Install button.
- Complete the operation by installing any critical updates that Windows detects.

Get Started

There are a couple of tools and investments that organizations will have to make to get started with an Exchange Server.

Exchange Server Appliance: Lots of RAM and storage capacity.

Server OS software: Windows Server 2008 Standard or Enterprise

Email Downloader: Karl Forster, president of Lockstep Systems (www.lockstep.com), recommends a third-party email downloader to bridge the gap between the hosting company that holds your email and your local Exchange server.

Backup Software: Forster recommends using a combination of the built-in Windows backup and a good third-party Windows Server-based backup program.

Top Tips

- ✓ The choice between local and remote is a simple one. “The primary benefit to Exchange is it provides you with local email that is under your control,” says Karl Forster, president of Lockstep Systems (www.lockstep.com). “Email is too important for many companies to simply hand over to someone else and hope everything runs fine.”
- ✓ When setting up an Exchange Server, make sure to allocate enough computer resources to Exchange. It’s OK to overestimate on RAM and storage capacity, particularly if the Exchange Server will need to handle more than a few dozen mailboxes.
- ✓ Allow plenty of time to set up the Exchange Server. “The typical time for setting up Exchange is half a day,” Forster says. “It is common for someone who is new to Exchange to spend several days getting all of Exchange’s prerequisites correct. When you underestimate the amount of time to install Exchange, many people have a tendency to rush through it and make mistakes along the way.”
- ✓ Set up the Exchange environment correctly the first time; there will come a point at which it is too late to make some changes. “For example, when you set up the Active Directory, you cannot change the computer name hosting Active Directory and you cannot change the name of the domain within Active Directory,” Forster says. “If you want to change the domain you set up in Active Directory, it may be easier to reformat the domain controller and start over.”

Network With Your Peers At These IT Training & Association Meetings Across The United States

OCTOBER

70-642 Vendor Exam Prep

Oct. 21, 12:30 to 2:30 p.m.
2400 Corporate Exchange Drive,
Suite 300
Columbus, Ohio
www.techskills.edu

ISACA Kentuckiana Chapter

Oct. 21
Louisville, Ky.
www.isacaky.org

ISSA
Middle Tennessee
Oct. 21, 11:30 a.m. to 1 p.m.
HCA
Nashville, Tenn.
www.issa-midtn.org

70-642
Vendor Exam
Prep
Oct. 24, 10 a.m. to 12:30 p.m.
2400 Corporate Exchange Drive,
Suite 300
Columbus, Ohio
www.techskills.edu

AITP
Akron
Oct. 25
356 Fighter Group Restaurant
4919 Mt. Pleasant Road
North Canton, Ohio
www.akron-aitp.org/index.htm

AITP
St. Louis
Oct. 25, 5:30 p.m.
Crowne Plaza Clayton
7750 Carondelet Ave.
St. Louis, Mo.
stlouisaitp.org

ISSA Inland Empire
Oct. 25, 11:30 a.m. to 1:30 p.m.
Coco's in Upland
60 W. Foothill Blvd.
Upland, Calif.
ie.issa.org

AITP
California Southland
Oct. 26
Coco's Bakery
12032 Harbor Blvd.
Garden Grove, Calif.
www.aitpcalsouthland.org

Data Connectors
Memphis Tech-Security
Conference
Oct. 27
Memphis Marriott
2625 Thousand Oaks Blvd.
Memphis, Tenn.
www.dataconnectors.com/events/2011/10Memphis/agenda.asp

Information
Security Summit
Oct. 27-28
LaCentre Conference
& Banquet Facility
25777 Detroit Road
Westlake, Ohio
www.informationsecuritysummit.org/index.php

ISSA
Metro Atlanta
Oct. 27
Atlanta, Ga.
www.gaissa.org

70-642
Vendor Exam Prep
Oct. 28, 12:30 to 2:30 p.m.
2400 Corporate Exchange Drive,
Suite 300
Columbus, Ohio
www.techskills.edu

NOVEMBER

Data Connectors Milwaukee
Tech-Security Conference
Nov. 3
Hilton Garden Inn
Milwaukee Park Place
11600 W. Park Place
Milwaukee, Wis.
www.dataconnectors.com/events/2011/11Milwaukee/inv_ex.asp

Central Plains ISSA
Nov. 4, 1 p.m.
Wichita Marriott Restaurant
9100 E. Corporate Hills Drive
Wichita, Kan.
issa-cp.org

AnDevCon II
Nov. 6-9
Hyatt Burlingame
San Francisco Airport
1333 Bayshore Highway
Burlingame, Calif.
www.andevcon.com

Ethical Hacking
& Countermeasures (CEH)
Nov. 7-11, 9 a.m. to 5 p.m.
Chicago, Ill.
www.solutient.com/ceh

Metro Atlanta
ISSA Annual Conference
"Security By Design"
Nov. 8-9
The Loudermilk Center
40 Courtland St. NE
Atlanta, Ga.
www.gaissa.org

AITP Research Triangle Park
Nov. 10
University Club
4200 Hillsboro St.
Raleigh, N.C.
www.rtp-aitp.org

Data Connectors
Orlando Tech-Security
Conference
Nov. 10
Orlando, Fla.
www.dataconnectors.com/events/2011/11Orlando/agenda.asp

SQL Server Society
of Las Vegas
Nov. 10
sssolv.com

Cloud Computing
Users Group
Nov. 14
Platform Labs
1275 Kinnear Road
Columbus, Ohio
www.platformlab.org

AITP
Oklahoma City
Nov. 15
aitpokc.org

AITP
Pittsburgh
Nov. 15, 5:30 p.m.
Sokol Club
2912 Carson St.
Pittsburgh, Pa.
www.aitp-pgh.org/events.htm#November

AITP
Southwest
Missouri
Nov. 15
aitpspringfield.org

ISSA
Inland Empire
Nov. 15, 6 to 9 p.m.
Coco's in Upland
60 W. Foothill Blvd.
Upland, Calif.
ie.issa.org

**ISSA
Silicon Valley**

Nov. 15
sv-issa.org

.....
**VMware
User Group**

Nov. 15, 8 a.m. to noon
Platform Labs
1275 Kinnear Road
Columbus, Ohio
www.platformlab.org

.....
**AITP
Atlanta Chapter**

Nov. 17, 5:30 to 8 p.m.
Crowne Plaza Ravinia
4355 Ashford Dunwoody Road
Atlanta, Ga.
www.aitpatlanta.org

.....
**AITP
St. Louis**

Nov. 17, 5:30 p.m.
Crowne Plaza Clayton
7750 Carondelet Ave.
St. Louis, Mo.
stlouisaitp.org

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**Data Connectors
San Francisco Tech-Security
Conference**

Nov. 17
San Francisco, Calif.
www.dataconnectors.com
/events/2011/11SanFrancisco
/agenda.asp

.....
**ISSA
Northern Virginia**

Nov. 17, 5:30 p.m.
issa-nova.org

.....
**ISSA
South Florida**

Nov. 17
Miami, Fla.
www.sfissa.org

**SIM
Minnesota**

Nov. 17, 2:30 p.m.
Northland Inn
7025 Northland Drive N.
Minneapolis, Minn.
www.simnet.org

.....
**ISACA
Kentuckiana
Chapter**

Nov. 18
Louisville, Ky.
www.isacaky.org

.....
**ISSA
Middle Tennessee**

Nov. 18, 11:30 a.m. to 1 p.m.
HCA
Nashville, Tenn.
www.issa-midtn.org

.....
**Sharepoint 2010:
A Collaborative Platform
for Developers**

Nov. 21, 9 to 11:30 a.m.
New Horizons
1890 Commerce Center
Fairborn, Ohio
tinyurl.com/NHD1121

.....
**Sharepoint 2010:
A Collaborative Platform
for Developers**

Nov. 21, 2 to 4:30 p.m.
New Horizons
10653 Techwoods Circle
Cincinnati, Ohio
tinyurl.com/NHD1121

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**AITP
California
Southland**

Nov. 23
Coco's Bakery
12032 Harbor Blvd.
Garden Grove, Calif.
www.aitpcalsouthland.org

AITP Akron

Nov. 29
356 Fighter Group Restaurant
4919 Mt. Pleasant Road
North Canton, Ohio
www.akron-aitp.org/index.htm

DECEMBER

**Data Connectors
Albuquerque Tech-Security
Conference**

Dec. 1
Albuquerque, N.M.
www.dataconnectors.com
/events/2011/12Albuquerque
/agenda.asp

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**Central Plains
ISSA**

Dec. 2, 1 p.m.
Wichita Marriott Restaurant
9100 E. Corporate Hills Drive
Wichita, Kan.
issa-cp.org

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TakeDownCon 2

Dec. 2-7
The M Resort Las Vegas
Henderson, Nev.
www.takedowncon.com

.....
AITP Research Triangle Park

Dec. 8
University Club
4200 Hillsboro St.
Raleigh, N.C.
www.rtp-aitp.org

.....
**Data Connectors
Phoenix Tech-Security
Conference**

Dec. 8
The Buttes
2000 Westcourt Way
Tempe, Ariz.
www.dataconnectors.com
/events/2011/12Phoenix/inv_ex.asp

**SQL
Server Society
of Las Vegas**

Dec. 8
sssolv.com

.....
**AFCOM
Central
Texas**

Dec. 15, 11:30 a.m. to 1:30 p.m.
Marie Callender's Restaurant
9503 Research Blvd.
Austin, Texas
www.afcom.com/afcomnew
/CentralTexas.HTML

.....
**Data Connectors
Ft. Lauderdale Tech-Security
Conference**

Dec. 15
Ft. Lauderdale, Fla.
www.dataconnectors.com
/events/2011/12FtLauderdale
/agenda.asp

.....
**ISSA
Northern
Virginia**

Dec. 15, 5:30 p.m.
issa-nova.org

.....
**ISSA
South
Florida**

Dec. 15
Miami, Fla.
www.sfissa.org

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**AITP
Oklahoma City**

Dec. 20
aitpokc.org

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**AITP
Southwest
Missouri**

Dec. 20
aitpspringfield.org

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Savvy Shopping In The Used Market

What Equipment Makes Sense To Buy Used?

WITH MANY MANUFACTURERS instituting “planned obsolescence” programs, in which equipment sometimes reaches end-of-life in as little as 12 or 18 months, data centers are finding their pocketbooks lighter more often. But this more frequent cycling of equipment has an upside: It means that more equipment is available to budget-conscious enterprises shopping the secondary market. And while the new equipment market offers IT groups only a narrow slice of options, resellers have access to a much wider selection, stretching from today’s models to equipment that’s several years old. Enterprises looking for low prices can find great deals on the used market, but where do you start when you’re ready to give refurbished equipment a try? What equipment is a safe bet to buy used?

The usual suspects. A handful of common items are among those often recommended as good buys on the secondary market. “The best equipment to get, especially refurbished, is networking equipment—firewalls, routers, and switches,” says Rahul Pinto, senior director of professional services at Recurrent Technologies (www.recurrent.com). Not only

are these items generally easy to incorporate into existing environments, but the level of demand for them on the new market translates into wide availability through resellers, and the amount of product in inventory means that data centers have their pick of models, capabilities, and price points.

Storage. If networking equipment is at the top of the used market shopping list, then storage ranks a close second. Disk storage in particular is in high demand and enjoys a brisk trade on the secondary market. Buyers looking for something specific shouldn’t have trouble locating their preferred flavor, and because the selection is so good, “not only will they likely find it, they’ll find it for a lot better price,” says Johnny Tourino, vice president of Spectra (www.spectra.com). And while disk storage may get most of the limelight, tape storage is also a strong seller on the secondary market.

Servers. Enterprises looking for deals on used equipment should consider the values offered by refurbished servers. Tourino says that buyers will find “more power for your buck. If you get on the bleeding edge of servers, you’ll spend a fortune and you’ll

pick up maybe 5% or 10% more [power] than the predecessor server, but it doesn’t really cost justify.” The range of manufacturers and models available through resellers is vast, so buyers are almost certain to find what they need.

Telephony. Also increasingly popular on the secondary market is IP telephony equipment. “We sell quite a bit of it,” Pinto says, “including unified communication systems, phones, and the whole call center environment.” He says that used telephony products are often more straightforward from a reliability

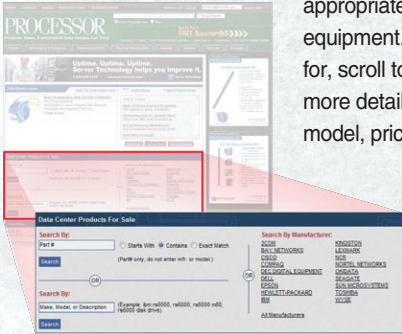
standpoint—phones either work or they don’t, and once products arrive for in-house testing, it’s clear if they’re going to be good units or not. Aggressive pricing is another attraction. “The discounts on used telephony equipment are higher than networking equipment,” Pinto says. “Companies can save a lot of money by going that route.” But what about data centers looking for legacy equipment? There’s good news there, too. “With the transition of companies going to VoIP-based systems, a lot of the legacy analog equipment is available,” Pinto says. **E**

Find Used & Refurbished Equipment For Sale

Once you've made the decision to purchase used or refurbished equipment, finding the equipment you need is easy with Processor's online Data Center Products For Sale Database.

From Processor's home page (www.processor.com), you can search for a specific part number, make, model, or description. Enter the information in the appropriate box and click Search. You'll see a list of available equipment. If you don't see the particular piece you're looking for, scroll to the bottom of the search results page to conduct a more detailed search. There, you can search by part number, model, price, location, and more.

Don't know the specific part number or model? Use the drill-down search on the Processor home page to view results from specific manufacturers. Simply click the manufacturer name, and you'll see a list of all equipment listings from that manufacturer.



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GREEN TECH & TIPS

Environmental Power Monitoring: Take Control Of Your Data Center's Power

POWER MONITORING IS CRITICAL in today's data center environment, because many organizations are looking for ways to reduce operating costs, improve energy efficiency, and lower the company's carbon footprint. Here is a look at some key ways you can use power monitoring to benefit your data center.

Knowledge Is Power

Data centers can realize improvements in both operations and IT management from power monitoring tools. "Operations benefits from access to real-time information on power usage and temperature that can be used to avoid problems such as overloaded circuits or hot spots in the facility. Looking at trends in that information over time helps in deciding where to place new equipment and plan for facility expansion," says Steve VanTassel, CEO of Packet Power (www.packetpower.com). "Management benefits by being able to allocate power usage to the system owners," he adds. "This is important as operating costs now exceed the cost of acquiring IT gear over the life of the equipment. And knowing power usage is important in deciding what investments make sense as you look at taking steps to improve a data center's energy efficiency."

The information you gather from power monitoring can also be valuable to improving the life span and performance of your server hardware. For

example, you could detect power quality issues and identify load imbalances across phases on multiphase circuits. "It can also be used to detect issues with a power supply on a device," VanTassel says. There are a variety of other aspects of your data center that power monitoring can help you to manage. "Planning for acquisitions and site consolidations, evaluating the feasibility of build-vs.-rent decisions when expanding, identifying underutilized or 'zombie' devices, balancing power demand vs. heat removal across a facility, picking the right energy-efficient technologies, and helping to motivate the system owners to reduce energy usage are all examples of common uses for monitoring data," VanTassel explains.

Power Monitoring Tools

You'll need to invest in hardware that gives you the ability to measure the loads you want to manage. Some organizations may only want enough circuit points to gather the information necessary to calculate

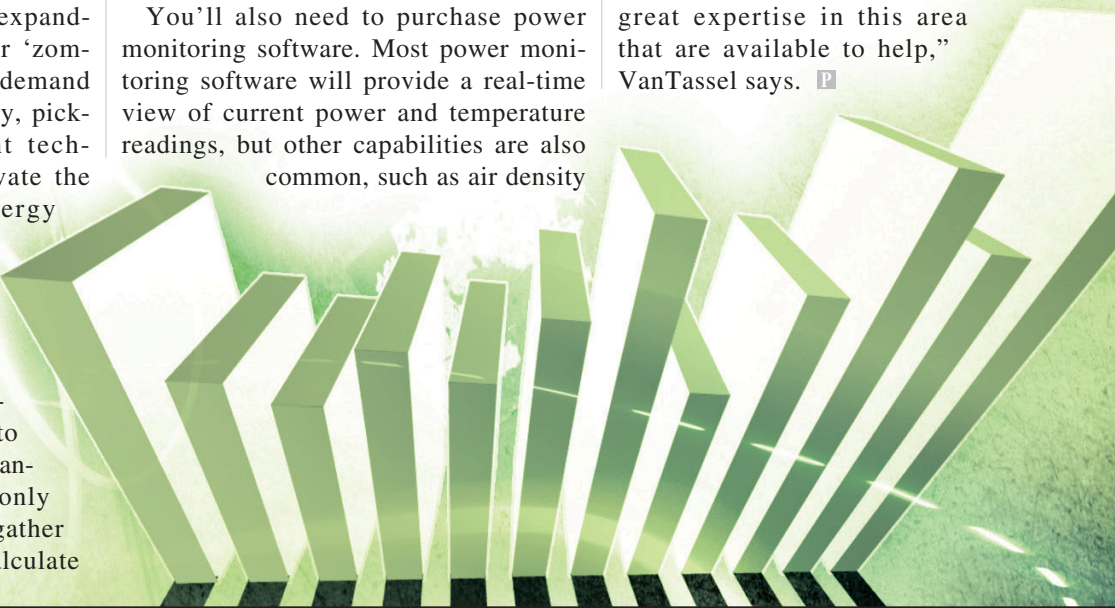
the PUE of the data center. Other data centers may be interested in having information about all the individual devices in the data center. "The majority seems to find the most value in a 'middle-of-the-road' approach that involves monitoring IT load at each of the two circuits supplying a cabinet," VanTassel says. You can install power monitoring hardware into pretty much any device in the data center, including the power distribution panel, meaning you can capture usage from smaller components such as power cords and high-power devices such as CRAC units.

You'll also need to purchase power monitoring software. Most power monitoring software will provide a real-time view of current power and temperature readings, but other capabilities are also

common, such as air density

and chemical concentrations. "There are even software providers that focus on minimizing the need for power monitoring devices by using algorithms to estimate usage," VanTassel says.

Reduce Energy Usage

With the power monitoring information in hand, you can determine what devices and areas are using the most energy. With that baseline information, you can work on making changes and repeat the processes across other areas of your data center. "There are also many companies with great expertise in this area that are available to help," VanTassel says. 


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Processor Solutions Directory

Here are brief snapshots of several companies offering products designed for the data center and IT industry. Listings are sorted by category, making it easy for you to find and compare companies offering the products and services you need.

You can find more detailed information on these companies and the products they offer inside this issue.

To list your company and products,
call (800) 247-4880.

PHYSICAL INFRASTRUCTURE



BayTech was founded in 1976 and, since the 1990s, has developed unique products for remote power management. The company uses printed circuit board instead of wires for a better, more resilient connection between the data center equipment and the receptacle. BayTech provides an extensive Web site with brochure downloads, warranty information, and reseller support and also offers evaluation units for data centers.

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- Power control, distribution, management, and metering
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Server Technology is committed to the PDU market with the largest group of engineers dedicated to power distribution and other solutions within the equipment cabinet. Advancements in device power monitoring help data centers monitor and improve their efficiency, and continuous research and development is fueled by companies that look to Server Technology for their custom cabinet power solutions.

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